





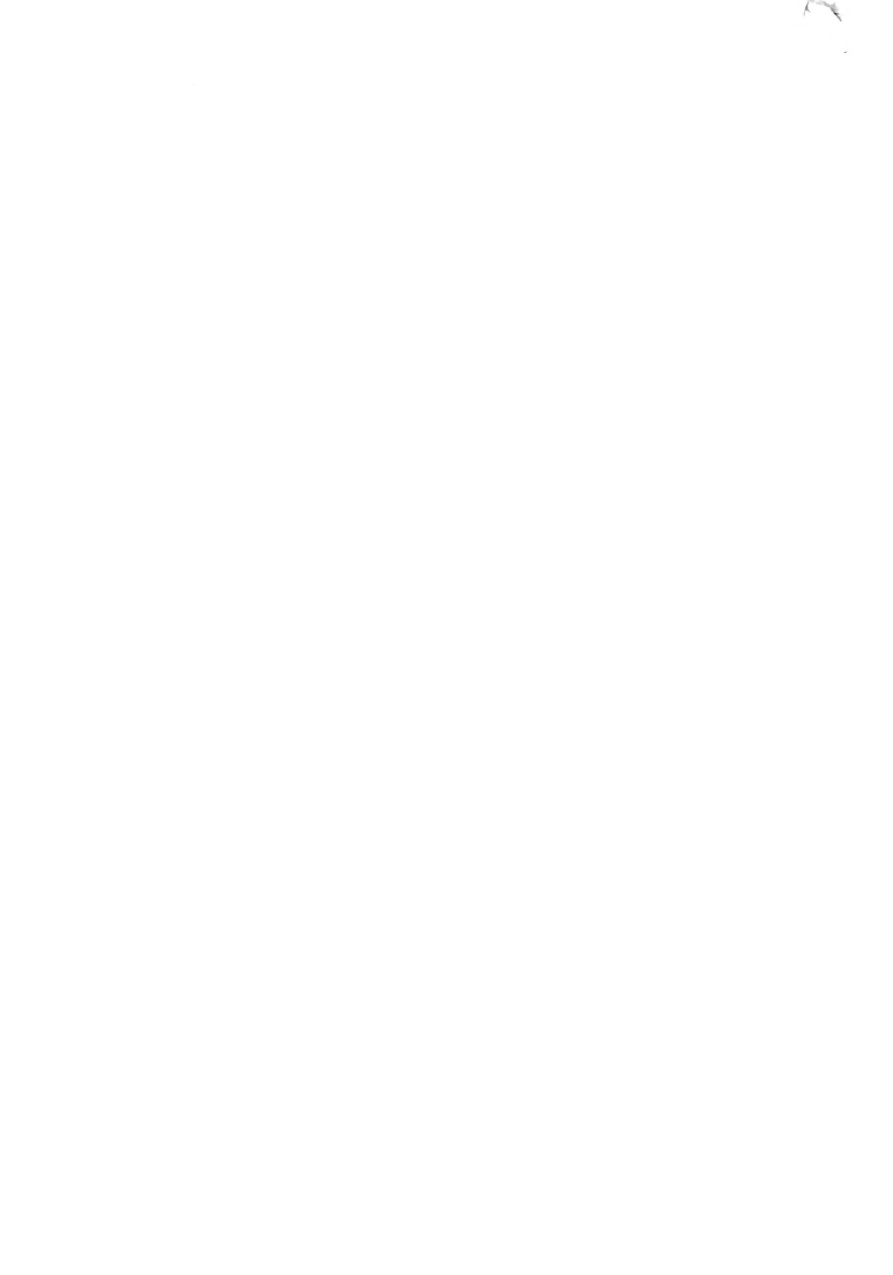
DELISTING  
GUIDANCE MANUAL  
FOR HAZARDOUS WASTES

JANUARY, 1988



## TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION .....	1
1.1 Purpose of this Manual .....	1
1.2 Listing of Hazardous Wastes under Regulation 309.....	4
1.3 Rationale for the Listing/Delisting Process .....	8
2.0 STEPS OF THE DELISTING PROCESS .....	10
3.0 INFORMATION REQUIRED .....	14
3.1 Description of the Manufacturing Processes .....	14
3.1.1 General Information of the Process .....	15
3.1.2 Assessment of Hazardousness .....	16
3.1.3 Special Procedures: Petroleum Refinery .....	24
3.1.4 Special Procedures: Multiple Waste Treatment .....	28
3.2 Nature of the Waste .....	30
3.2.1 Description of Waste .....	30
3.2.2 Quality Assurance and Quality Control (QA/QC) .....	31
3.2.3 Sampling of Waste .....	33
3.2.3.1 Representative Sampling .....	34
3.2.3.2 Sampling Equipment .....	35
3.2.3.3 Specific Sampling Techniques .....	35
3.2.3.4 Sampling Handling, Storage and Documentation .....	36
3.2.4 Selection of Waste Analytical Methods .....	38
3.2.4.1 Tests for characteristics .....	39
3.2.4.2 Tests for Constituents .....	40
3.3 Description of Waste Management Practices .....	43
4.0 HOW TO COMPLETE THE DELISTING APPLICATION FORMS .....	45
4.1 Part A: General Identification .....	46
4.2 Part B: Manufacturing Processes .....	50
4.3 Part C: Waste Stream .....	65
4.4 Part D: Waste Management Practices .....	71



## BIBLIOGRAPHY

## APPENDICES:

- A: Hazardous Waste Definitions
- B: Extraction Procedures for Oily Waste
- C: Hazardous Constituents
- D: Regulation 11/82: Waste Management - PCB's
- E: Delisting Application Form





## 1.0 INTRODUCTION

### 1.1 Purpose of this Manual

Under Regulation 309 of the Environmental Protection Act (EPA), the Ontario Ministry of the Environment (MOE) has listed more than 95 industrial waste streams as hazardous industrial wastes, (Reg. 309 Schedule 1) and more than 670 commercial products as acute hazardous or hazardous waste chemicals (Reg. 309, Schedule 2, Parts A and B). These wastes were listed because they typically and frequently exhibit one or more of the characteristics of hazardous wastes, or they contain certain specific constituents that are known to be toxic or otherwise hazardous. If a waste from any facility can be identified in Schedule 1 or if a product/ byproduct, identified in Schedule 2 (A and B), is disposed of as a waste, the waste is regulated as hazardous. Schedules 1 and 2 were derived from similar lists prepared by the United States Environmental Protection Agency (USEPA).

The Ministry provides for an ongoing mechanism for adding hazardous wastes to the existing lists. This



listing process may be initiated by members of the public, industry or government. This request for examination of an unlisted waste (believed to be hazardous) may be directed to the Waste Management Branch of the Ministry and does not require the proponent to submit extensive documentation. The listing procedures of the Ministry are under development and should be available in fall, 1988. Generally speaking, each listed substance will have a background document providing the rationale for such listing.

The MOE recognizes however, that a listed waste from a particular facility may not actually be hazardous. This could be the case if the waste:

- a) does not exhibit the characteristics or does not contain the constituents for which it was originally listed;
- b) contains these constituents at relatively low concentrations (below any concentration of concern, considering the waste management practices used). A decision on this must draw upon existing standards and guidelines in various jurisdictions and may require a risk assessment. When very little information is available as to the health and environmental



risk of the waste, the waste shall not be delisted. This is to ensure that the decisions will be conservative and err on the side of caution.

These situations could occur, for example, if a facility uses or processes raw materials different from the ones assumed when the Regulation was written. Regulation 309 (Sections 1 (2), 1 (26) and 1 (28)) provides the opportunity to "delist" such a waste, in other words, to exclude it from the Schedule.

It should be noted that once delisted, the waste still remains a waste, and will have to be managed according to practices required as part of the approval of any delisting. It is also emphasized that dilution of a waste as a strategy is not acceptable to the Ministry.

The purpose of this manual is to assist generators of hazardous wastes wishing to submit a delisting application. To ensure that hazardous wastes do not endanger the environment, the delisting procedure requires the submission of the following information:



- a) processes and chemicals used;
- b) results of tests for hazardous constituents and hazardous waste characteristics;
- c) waste management practices currently in effect, on-site and off-site;
- d) identification of proposed waste management sites and practices when and if waste is delisted; and status of the waste if delisted (e.g. still hazardous for other reasons, liquid industrial, municipal, etc.);
- e) other related information.

Due to the complexity and the extent of information required, this manual is intended to provide guidance in hopes of reducing costly delays during the delisting process. It is suggested that the applicant obtain a copy of Regulation 309 (from the local Ministry office), as frequent references are made to this regulation. Detailed discussions with the appropriate Regional and Waste Management Branch staff prior to submitting an application is essential.

## 1.2 Listing of Hazardous Wastes under Regulation 309

It is important for the applicant to understand how hazardous waste is defined and listed, because the





listing rationale forms the basis for the delisting process.

The Ministry of the Environment is using the same initial approach for listing hazardous wastes as the one used by the United States Environmental Protection Agency (USEPA) (see Bibliography). Minor changes were incorporated in the writing of Regulation 309, to reflect Ontario and Canadian requirements. Any waste is listed as hazardous waste if it meets one or more of the following criteria, or is a waste of a type or from a type of waste stream which typically meets one or more of the following criteria:

1) It exhibits any one of the hazardous waste characteristics:

- Ignitable
- Corrosive
- Reactive
- Radioactive
- Leachate Toxic

(Refer to Section 3.2.3.1 and Appendix A for further details.)



- 2) It has been found, by scientific research, to be fatal to humans in low doses; or, in the absence of human toxicity data, it has any of the following properties:

- ° an oral LD<sub>50</sub> (rat) less than 50 mg/kg,
- ° an inhalation LD<sub>50</sub> (rat) less than 2 mg/L,  
or
- ° a dermal LD<sub>50</sub> (rabbit) less than 200 mg/kg;

(LD<sub>50</sub> refers to the contaminant dose where 50% of the specimens (rats, rabbits, etc.) died).

or it has been found to otherwise cause or contribute to serious irreversible or incapacitating illness. Such a waste is called an acute hazardous waste, and is subject to control at smaller quantities than other hazardous wastes.

- 3) It contains one or more of the hazardous constituents listed in Appendix C of this manual, unless after consideration by the MOE, the waste does not pose a substantial threat to human health or the environment when improperly managed or disposed of.



Many of these constituents have been shown to cause cancer, genetic mutation or embryonic damage in humans or other animals.

Using these criteria, three lists of hazardous wastes were produced and are included in Regulation 309:

- i) Hazardous industrial wastes (Schedule 1).  
These consist of spent solvents and electroplating wastes (non-specific sources) and residues from manufacturing and wastewater treatment processes (specific sources).
- ii) Acute Hazardous waste chemicals (Schedule 2, Part A); discarded commercial chemical products, off-specification manufacturing intermediates and spill residues thereof. This list is based on all three criteria noted above. The definition of commercial waste chemicals includes materials such as pharmaceutical or pesticide waste products that contain active ingredients from Schedules 2 (A) and 2 (B). Active ingredients are chemical constituents that have been included in a formulated product for an intended effect.



- iii) Hazardous Wastes Chemicals (Schedule 2, Part B); these discarded commercial chemical products, off-specification intermediates are less hazardous than the ones mentioned above.

Unlike the listing approach used in Schedule 1 and 2, other wastes fall within the definition of hazardous waste if they meet one or more of the hazardous characteristics, as outlined in Appendix A (i.e. ignitability, corrosivity, reactivity, radioactivity and leachate toxicity). In addition, pathological and PCB wastes are specifically identified as hazardous in the Regulation.

### 1.3 Rationale for the Delisting Process

Because of the complexity of the toxicity evaluation of certain chemicals, some wastes from specific industries and active chemical ingredients of commercial wastes have been listed in Regulation 309. However, the MOE has made provisions in Regulation 309 for a process of delisting of hazardous wastes from Schedule 1 and Schedule 2 (Parts A and B).

The applicant must show, by means of a comprehensive sampling, testing and reviewing program, that the waste in question does not meet any of the criteria





for which the waste was originally listed. In addition, the applicant must provide additional information regarding other hazardous properties or other constituents present in the waste at significant levels. Other potential impacts of the waste delisting must be considered: effect on the specific site, impact upon alternative waste disposal facilities and provincial waste management practices.

The delisting process requires that the applicant provide a comprehensive description of the waste to be delisted, so that the additional possibility of the presence of other factors (other than those for which the waste was originally listed) which might cause the waste to be hazardous, can be evaluated.

While the delisting process appears to require a large volume of information, it is justified by the seriousness of the harm that could result if hazardous wastes were to be improperly delisted and thus allowed to endanger the environment. The clean-up costs could significantly exceed the savings in waste management costs resulting from a delisting error. Therefore all aspects must be considered in detail.



## 2.0 STEPS OF THE DELISTING PROCESS

This section summarizes the delisting process. Each step is detailed in the following sections and illustrated in Figure 1.

### 1) Submission of application

Once the applicant is familiar with the requirements of the delisting process as described in this guidance manual, a delisting application can be submitted to the Hazardous Waste Listing/Delisting Unit(HWL/D Unit), Waste Management Branch, of the Ministry of the Environment (see Figure 1, A1).

After preliminary review of the original application (B1), corrections and additional information from the applicant may be required by the reviewing committees and other regulatory organizations (B2).

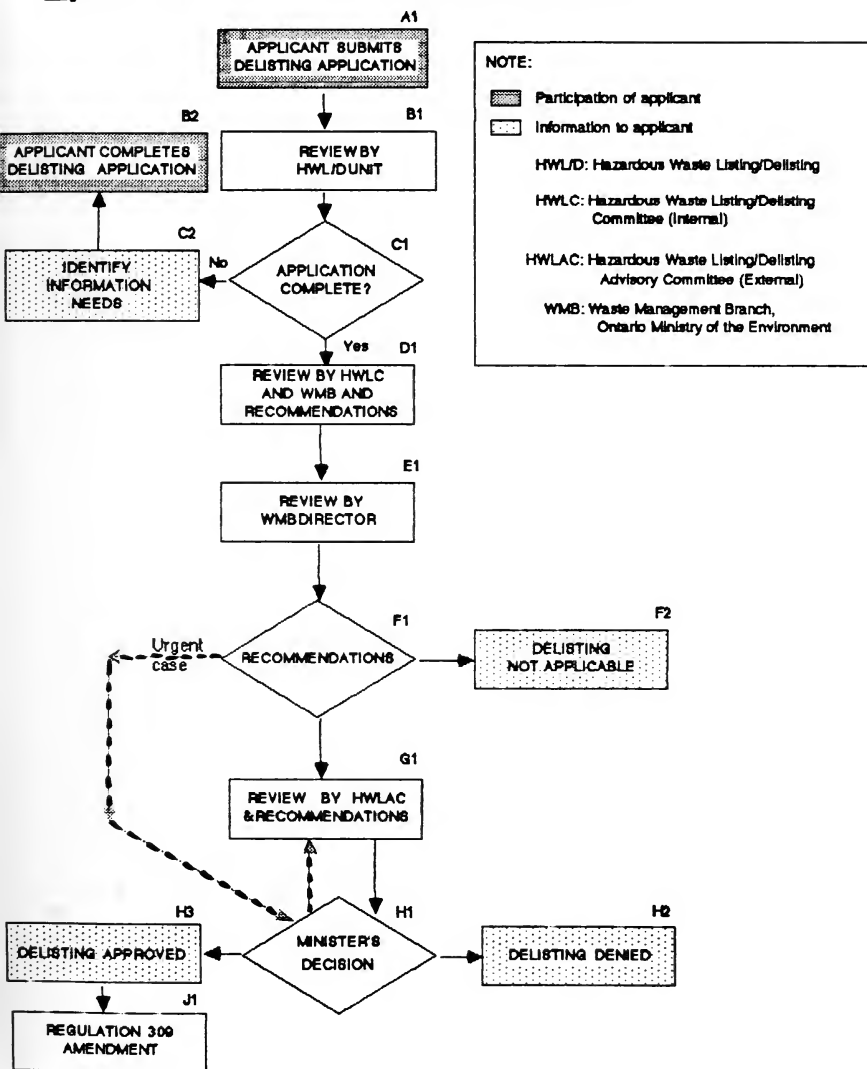
### 2) Review of the application

During a normal delisting exercise, the following government/public organizations will be involved in the review of the application:

- a) Hazardous Waste Listing/Delisting Unit (HWL/D Unit) (B1)



Figure 1: HAZARDOUS WASTE DELISTING PROCESS





- b) Hazardous Waste Listing/Delisting Committee (HWLC) (internal MOE committee) (D1)
  - c) Waste Management Branch Director (E1)
  - d) External Hazardous Waste Listing/Delisting Advisory Committee (HWLAC) (external committee) (G1)
  - e) The Public (G2)
  - f) Minister of the Environment (H1)
- 3) The Ministry's decision

A decision may, in some occasions, be taken early in the delisting process (F2). The application may be rejected after review by the Director of the Waste Management Branch for reasons such as the incorrect interpretation of Regulation 309, or frivolous nature of the application.

However, in most instances, the review and recommendations of the internal Ministry HWLC are presented to the Director of the Waste Management Branch for consideration (E1). These recommendations are then presented to the external Hazardous Waste Listing/ Delisting Advisory Committee (HWLAC) (G1), which is a group of experts appointed by the Minister. The terms of reference for this external advisory committee are:





- a) to solicit, receive and review public comment regarding the listing or delisting of hazardous wastes, and subsequently submit their advice to the Minister directly;
- b) to advise the Minister on the acceptability of interim listing or delisting decisions made by Ministry staff; and,
- c) to undertake tasks and projects associated with the overall implementation of the newly introduced Regulation 309 under the EPA which specifies among other items, the designation, exemption and classification of wastes, sets standards for waste disposal sites and systems, entails generator (of waste registration, and governs the use of transportation manifests.

The HWLAC's recommendations to the Ministry may include public comments on the issue. Finally the Minister of the Environment makes a decision (H1) based on the HWLAC information and recommendations. These decisions are made public. The delisting may be granted (H3), in which case, Regulation 309 is amended (J1) and the waste delisted is identified in Schedule 1 (Part E) or Schedule 2 (Part E) for the particular waste and site of the applicant; or the delisting may be denied (H2). Interim decisions



based on urgent cases (with due referral to HWLAC) also require amendment to the Regulation 309. It should be noted that a delisted waste is still classified as a waste. Subsequent to the amendment to the Regulation, the delisted waste (from the specific site and process) is listed in the appropriate "E" Schedule of the Regulation 309, along with the specific range of conditions (with normal raw material and operating conditions) under which the delisting is applicable. Should the waste exceed the maximum allowable concentration of contaminants, it would be considered hazardous and would require hazardous waste disposal.

### 3.0 INFORMATION REQUIRED

The MOE requires sufficient information in order to determine the waste characteristics and the possible presence of toxic constituents in the waste.

#### 3.1 Description of the Manufacturing Process

The MOE requires information on the manufacturing operations or other processes which generate the waste. The applicant may choose either to provide a detailed list of raw materials and an evaluation of the fate of these chemicals in the waste, or to test for Appendix C hazardous constituents in the waste



stream. It may also be necessary to provide information related to the nature and quantity of by-products that may be generated in the process.

### 3.1.1 General Information of the Processes

The description of the manufacturing processes or other operations that produce the listed waste may include for example, and as appropriate, the following items:

- ° A description of production lines and major items of equipment; description also of the stages of the typical operation cycle (eg. start-up, steady-state operation, cleaning and maintenance) on a daily, weekly, or other basis as appropriate.
- ° A description of any surface and equipment preparation, cleaning, degreasing, coating or painting processes used in the facility that have not been included in the description of the production lines.
- ° A schematic diagram of all manufacturing processes, surface preparation, cleaning, and other operations that may contribute to the waste.



The applicant needs to provide sufficient information to allow the Ministry to understand the process, how and where the waste is formed, and how any toxic constituents may end up in the waste. In particular, variations from typical processes in that industry should be noted.

### 3.1.2 Assessment of Hazardousness

The applicant may use either of the two approaches described below to provide information on those constituents that may be present in the waste. Approach A relies on a material inventory to assess the nature of the waste, whereas Approach B relies on a comprehensive analysis program of possible contaminants. Prior consultation with the Ministry would assist the applicant in making the correct choice. In many cases, Approach 'A' may be more desirable when the wastes are produced by stable, predictable processes.

#### Approach A:

- A1) The applicant must provide a list of all materials used in the manufacturing or other operations that produce the waste. To the extent possible, the chemical name rather than the generic name (e.g. "sodium hydroxide" instead





of "caustic cleaner") should be used. The approximate quantities used annually should be specified. Examples of materials to be included are:

Raw Materials

Intermediate Products

By-Products

Products

Oils and Hydraulic Fluids

Surface preparation materials (such as lubricants, solvents, acids, cleaners, surface preparation agents, paints wrapping/packaging, etc.)

- A2) The applicant must indicate which materials on the above list (paragraph A1) are either discharged into the waste, are in contact with the waste, or are likely to be present in the waste. For each material so indicated, an estimate of the amount (in metric units) that enters the waste stream annually must be provided. For materials specified in terms of a generic or trade name, a Materials Safety Data Sheet should be included, if it is available from the suppliers.



A3) From the above list of all materials that are used or produced at the plant or facility, the applicant must indicate which ones are not discharged into, nor likely to be present in, the waste. The reasons for this should also be indicated.

A4) The applicant must make an assessment of the likelihood that these processes, operations, or feed materials might produce or contribute to a waste that is not included in this application, or might change the characteristics of the waste. Considerations such as start-up and shutdown operations, maintenance, spills, leaks, on site neutralization, treatment, recycle, stabilization/solidification encapsulation, dilution and other accidents should be included.

A5) For proper characterization of the waste, pertinent test results on representative samples of the waste must be provided by the applicant for the following:

- The specific hazardous constituents for which the waste was listed (i.e. total concentration of each listed constituent found in Appendix C of this manual);



- The hazardous waste characteristics. (Note that an explanation of why the waste does not exhibit a particular characteristic may be provided, in lieu of testing for that characteristic.) (See Appendix A);
- Appropriate leachate tests for the contaminants in Schedule 4;
- Total concentrations of the contaminants in Schedule 4 (Reg. 309);
- Total organic carbon (TOC);
- Total oil and grease; and
- Chromatographic scanning for organics and component identification of important peaks.

(Certain tests may not be required if the rationale for not conducting these tests is justified):

#### Approach B

As an alternative to the information requested in Approach A, the following information can be provided instead:



B1) Justification must be forwarded for those constituents listed in Appendix C that the applicant does not expect to find (and thus does not analyse for). The explanation may be presented on a substance-by-substance basis or for a group of substances. If the Ministry does not find the explanation satisfactory, analyses of additional constituents or a better explanation will be required;

B2) Pertinent test results on representative samples of the waste must be provided for the following:

- The specific hazardous constituents for which the waste was listed (i.e. total concentration of each pertinent constituent found in Appendix C of this manual);
- All other constituents listed in Appendix C that are likely to be present in the waste in significant concentrations, ('significant' concentration refers to concentrations greater than 25% toxic concentration for that constituent);
- The hazardous waste characteristics (see Appendix A);





- Appropriate leachate tests for contaminants in Schedule 4;
- Total organic carbon (TOC);
- Total oil and grease; and
- Chromatographic scanning for organics and component identification of important peaks.

(Certain tests may not be required if the rationale for not conducting these tests is justified):

Selection of constituents for testing

Depending on the approach selected by the applicant, a large number of constituents may be identified. A list of constituents to be analyzed may be determined number by specifying:

- ° the chemicals going into the process;
- ° the product coming out;
- ° the chemical and physical reactions of the process.



A mass balance for the process will show what raw materials are used, their use rates, and whether they are likely to be present in the waste at significant concentrations.

- ° For example, consider a process involving the production of aniline by the reduction of nitrobenzene. Based on plant data, for each 100 kg. of nitrobenzene used, 72 kg. of aniline is formed, which indicates that 5 kg. of nitrobenzene is lost in the process per 100 kg. used. Furthermore, it is known that 20,000 L of wastewater results from the production of each 72 kg. of aniline. Therefore, one can estimate that the maximum concentration of nitrobenzene in the wastewater is about 250 mg/L assuming that all of the nitrobenzene is in the wastewater. Based on this calculation, the generator would likely test the wastewater treatment sludge for nitrobenzene.

The area of by-products is the most difficult to consider, because expert chemical judgement (supported by appropriate examples



from the literature) must be applied to predict the types and relative amounts of by-products expected from a reaction.

- ° For example, any reaction involving chlorinated phenols might produce some chlorinated dibenzodioxins, which are considered to be hazardous at trace levels, although it is not a very probable reaction in most circumstances. In such cases, the applicant should include the chlorinated dibenzodioxins as a constituent for testing.

The more detail that is provided in the mass balance analysis, the more likely the review committee is to accept the rationale for which constituents are likely to be present.

- ° For example, if a reactant is described as "technical benzene", questions about the presence of toluene and other aromatics (and their by-products) in the waste stream may be raised. On the other hand, identification of the reactant as "90% benzene, 9% toluene, 1% xylene and less than 10 ppm sulfur" limits the likely composition of the waste stream.



The applicant may not wish to disclose information related to some items of the process. In such cases, a greater burden is placed on the analytical requirements.

- ° In some instances, it may not be possible to construct a mass balance (e.g. chemical mixtures used in maintenance, clean-up, and other non-process applications). In such cases, the applicant should list the known constituents in each mixture and estimate the amounts generated based on usage.

### 3.1.3 Special Procedures: Petroleum Refinery

Certain industries generate wastes whose constituents vary widely, and for which raw materials data cannot generally be provided. Therefore, the MOE requires the applicants in these industries to perform testing for certain constituents that can reasonably be expected to be present in the waste streams. Also, the MOE requires additional information on manufacturing and waste treatment processes beyond that which was requested in Section 3.1.1 above. The industries covered by these special procedures are Petroleum Refining Industries discussed





here, and other multi-waste industries, discussed in the next section (3.1.4).

For the Petroleum Refining industry, the following information on the nature of the waste should be provided, (instead of following Approach A or B).

- i) Test results on a representative number of waste samples for each of the following:
  - The hazardous waste characteristics (see Appendix A);
  - Appropriate leachate tests for contaminants (Schedule 4 of Regulation 309);
  - Weight of the solid residue remaining after step 4.13 of the Leachate Extraction Procedure (Regulation 309);
  - Total concentrations of leachate toxic metals (Schedule 4, Regulation 309) in the waste;
  - Total organic carbon (TOC);
  - Total oil and grease;



- If the waste contains greater than 1 per cent oil and grease, both the leachate extraction procedure (LEP) from Regulation 309 and the Extraction Procedure for oily waste (Appendix B) should be used when testing for leachate toxicity;
  - Total concentration of each of the constituents shown in Table 1 (these constituents have normally been shown to exist in the wastes from petroleum refining industries by USEPA);
  - Chromatographic scanning for organics and component identification of important peaks.
- ii) An assessment of the likelihood that these processes, operations, or feed materials might produce a waste stream that is not included in this application along with any additional toxic constituents that may be present in the waste. Considerations such as start-up and shutdown operations, maintenance, spills, leaks and other accidents should be included.



TABLE 1

CONSTITUENTS OF WASTES FROM PETROLEUM REFINING INDUSTRIES

1. Metals/Anions

Antimony  
Arsenic  
Barium  
Beryllium  
Cadmium  
Chromium  
Cobalt  
Copper  
Cyanides  
Lead  
Mercury  
Nickel  
Selenium  
Vanadium

2. Volatiles

Benzene  
Carbon disulfide  
Chlorobenzene  
Chloroform  
1,2-Dichloroethane  
1,4-Dioxane  
Ethyl Benzene  
Ethylene dibromide  
Methyl ethyl ketone  
Styrene  
Toluene  
Xylene

3. Semivolatile Base/Neutral  
Extractable Compounds

Anthracene Dimethyl phthalate  
Benzo(a)anthracene  
Benzo(b)fluoranthene  
Benzo(k)fluoranthene  
Benzo(a) Pyrene  
Bis(2-ethylhexyl)phthalate  
Butyl benzyl phthalate  
Chrysene  
Dibenz(a,h)acridine  
Dibenz(a,h)anthracene  
Dichlorobenzenes  
Diethyl phthalate  
7,12-Dimethylbenz(a)anthracene

Di(n)butyl phthalate  
Di (n) octyl phthalate  
Fluoranthene  
Indene  
Methyl chrysene  
1-Methyl naphthalene  
Naphthalene  
Phenanthrene  
Pyrene  
Pyridine  
Quinoline

4. Semivolatile Acid- Extractable Compounds

Benzenethiol  
Cresols  
2,4-Dimethylphenol  
2,4-Dinitrophenol  
4-Nitrophenol  
Phenol



3.1.1.4 Special Procedures: Wastes from Multiple  
Waste Treatment Facilities

Multiple Waste Treatment Facilities (e.g. drum reconditioning) typically receive a number of individual material/waste shipments which have a wide variety of composition. Approach A (raw material inventory) is not adequate to assess the nature of the incoming material and the characteristics of the treatment residues.

A new approach, similar to Approach B but more rigorous, is required in this case.

The applicant must provide the following information in the delisting applications:

- i) A description of the procedures used in the prescreening of the generators/carriers and the identification of the materials/wastes;
- ii) Test results on a representative number of waste samples for the following parameters:
  - hazardous waste characteristics (see Appendix A)





- appropriate leachate tests (using oily waste method, Appendix B), including total concentrations of metals and nickel
  - total organic carbon (TOC)
  - total oil and grease
  - cyanide: total, free and leachable
  - long-term stability, using a multiple extraction procedure set by the Ministry (applicable to solidified wastes only)
  - Appendix C Hazardous Constituents: a test for all constituents that are reasonably expected to be present in the treatment residues should be conducted. The rationale for not testing for certain constituents should be presented;
- iii) Statistics on the type of wastes received over a year and identification of the samples representing the waste types;
- iv) Chromatographic scanning for organics and component identification of important peaks.
- v) Quality control and monitoring program:
- a program should be proposed to monitor the quality of the treatment residues before disposal;



- tests for representative organic contaminants;
- the program should be developed and reviewed with the assistance of the Waste Management Branch (MOE).

### 3.2 Nature of the Waste

This section provides information on how to describe and quantify the nature of the waste, using sampling, testing and statistical data analysis methods.

#### 3.2.1 Description of the Waste

The lists of regulated wastes are found in Schedules 1 and 2 (Parts A and B) of Regulation 309. From those lists, the applicant must provide the following information regarding the waste which is subject to delisting application:

- ° Description of the waste stream: the description of the waste stream should be tied in with the description of the manufacturing process (Item 1, Part A), and provide detailed information of the waste generating process. The information should be included in appendices to the application for delisting;



- ° Waste Class Number (Ontario Classification Number: 3 digits and one letter) and the Product Identification Number (PIN: two letters and 4 digits) from the Transportation of Dangerous Goods Act (TDGA);
- ° Physical state of the waste (i.e. liquid stream, sludge, dry solid; for sludge, the percentage of solid must be indicated).

The applicant must provide the following estimated amounts of waste generated from operating records:

- ° Average/month
- ° Maximum/month
- ° Average/year
- ° Maximum/year

SI units are to be used, vague units such as "truck loads", etc. are not acceptable.

### 3.2.2 Quality Assurance and Quality Control (QA/QC)

The applicant should include, as part of the description of the sampling and testing procedures, a review of the QA/QC program adopted during any delisting program.



The Quality Assurance (QA) program refers to activities undertaken to ensure that every possible critical operation has been covered by appropriate control and performance monitoring steps. These activities are usually the responsibility of supervising personnel and include typically:

- documentation of sampling/testing methods;
- identification of critical steps in the methods;
- monitoring performance;
- follow-up on problems identified;
- inter-method comparisons;
- inter-laboratory comparisons.

The Quality Control (QC) program refers to activities undertaken prior to the use of laboratory facilities, supplies, equipment, and instrumentation to verify their suitability for the task. The analyst is normally responsible for performing these activities which address typically:

- cleanliness of labwares;
- reagent purity;
- equipment operation;
- instrument stability, drift, noise;
- instrument detector conditions;
- background noise, matrix effects;





- calibration zero, slope, curvature;
- calibration stability (day-to-day);
- response factors and retention times.

As part of the quality control program, performance monitoring is done while performing the analytical procedure to document the quality achieved. Under proper QC procedures, the following activities would confirm the good performance of the system:

- duplicate analysis of samples;
- analysis of blanks;
- use of internal standards;
- in-run checks on baseline/sensitivity drift;
- spike recovery (complete method);
- in-house control materials;
- charts and records related to the above.

### 3.2.3 Sampling of Waste

The delisting application must be supported by analytical results of waste samples. The type of results required has been outlined in sections 3.1.2 and 3.1.3. It is particularly important for the applicant to demonstrate in the application that the samples are representative of the waste and that their integrity is preserved until the required analyses are performed.



A simple statement that the samples are representative is not sufficient for the MOE to conclude that the waste has, in fact, been adequately sampled and characterized. In order for MOE to assess the sampling program, the applicant must provide a detailed rationale as to why the collected samples do represent the waste's composition as it varies in time and space. This rationale should be based in part on considerations of how the waste-generating process itself varies.

Depending on the complexity of the sampling program, the applicant may wish, and in certain cases may have, to discuss the sampling program with MOE and to agree on a sampling protocol.

#### 3.2.3.1 Representative Sampling

The selection of a sampling strategy depends on what type of variability the waste exhibits: time or space variability, or both. This aspect is presented in detail in the "Industrial Waste Sampling Guideline" (MOE).



### 3.2.3.2 Sampling Equipment

Different types of samplers are used for different types of waste and different waste streams. Samplers are described in the "Industrial Waste Sampling Guideline" (MOE) include:

- ° trowel or scoop
- ° tier
- ° grain sampler
- ° soil auger
- ° dipper (pond) sampler
- ° weighted bottle sampler
- ° tubular (profile or case) sampler
- ° tube and ball valve sampler
- ° PACS COLIWASA sampler
- ° concentric tube sampler
- ° regular and constricted glass tubes

### 3.2.3.3 Specific Sampling Techniques

Specific sampling techniques must be used for various sampling situations. A number of these techniques are presented in the "Industrial Waste Sampling Guideline" (MOE).



#### 3.2.3.4 Sample Handling, Storage, and Documentation

Samples collected must be handled, labelled, and stored so that sample integrity is preserved. In addition, proper documentation of sample collection preservation, and custody is essential. Details of these techniques are available in "Industrial Waste Sampling Guideline (MOE).

##### Handling and Storage

Containers - Samples should be collected and composited in proper containers.

On-Site Preservation - Once a sample has been collected, steps must be taken to preserve the physical and chemical integrity of the sample during transport and analysis. Refer to MOE publication "A Guide to the Collection and Submission of Samples for Laboratory Analysis" (Available from MOE's Laboratory Services Branch).

Identification and Labelling - Each container should be assigned a unique sample identification number, and an indelible label should be secured to the container.





Shipping - After the samples have been preserved, labelled, and sealed, they are ready for shipping. Samples should be shipped and analysed as rapidly as possible by a Ministry-approved laboratory (for Reg. 309). The MOE may also require replicates of some samples to be sent to MOE Laboratory Services for audit.

#### Documentation

In addition to labels and seals, there are three types of documentation necessary to ensure the integrity of the sample: a chain-of-custody record, a field log book, and a sample analysis request sheet.

A chain-of-custody record should be filled out and should accompany every sample. The record should contain the following information: sample identification number, signature of collector, date and time of collection, place and address of collection, and waste type.

In addition, all information pertinent to a field survey or sampling must be recorded in a log book.



Finally, a sample analysis request sheet available from Ministry or other laboratories should accompany the sample to the laboratory.

The applicant should preserve all chain-of-custody documents, log books, and similar records in case a question arises regarding the sampling portion of the application.

#### 3.2.4 Selection of Waste Analysis Methods

This section includes a brief description of the methods used in the analysis of waste for the hazardous characteristics and constituents. The waste analysis methods in many cases are complex and may require relatively elaborate laboratory facilities. The design and execution of the testing program should be done by a qualified analytical chemist. If the necessary personnel or laboratory resources are not available in-house the applicant is advised to consult with the Ministry's Regional or Waste Management Branch staff for the selection of a testing laboratory or consultant for the design and execution of the testing program.



#### 3.2.4.1 Tests for Characteristics

The applicant must determine if the waste exhibits one of the characteristics (ignitability, corrosivity, reactivity, leachate toxicity, and if it is severely toxic waste). These determinations may take the form of an explanation of why the waste cannot exhibit one or more of the characteristics. If the applicant cannot conclusively show a characteristic's absence, tests must be carried out on representative samples. (Refer also to Appendix A).

##### 1. Ignitability

This characteristic identifies wastes that either present fire hazards under routine storage, disposal, and transportation or are capable of severely exacerbating a fire once it is started.

##### 2. Corrosivity

This characteristic identifies wastes which might pose a hazard to human health or the environment due to their ability to:

- ° Mobilize or react with toxic metals;
- ° Corrode handling, storage, transportation, and management equipment; or



- ° Destroy or cause injury to human or animal tissue in the event of inadvertent contact.

### 3. Reactivity

This characteristic identifies wastes which, because of their extreme instability and tendency to react violently or to explode, pose problems at all stages of the waste management process.

### 4. Leachate Toxicity

The Leachate Extraction Procedure (Regulation 309) is designed to simulate the leaching that a waste will undergo if it is disposed of in a sanitary landfill.

#### 3.2.4.2 Tests for Constituents

In addition to testing for the characteristics as described earlier, the following tests should be conducted as appropriate for the waste stream:

- ° If cyanide was a constituent for which the waste was listed, or if it is expected to be present in the waste, total cyanide should be analysed. If the total cyanide concentration recorded is greater than 1 ppm, test for free cyanide should





be done. If the concentration of total cyanide is greater than 10 ppm, the photoconversion test for photodegradable cyanide should be performed.

- ° If the cyanide analysis indicates the presence of an interference in the wastes that produces non-representative concentrations, the interferences should be noted and explained.
- ° A total constituent analysis by complete acid digestion for all the leachate toxic metals (and nickel if nickel is a constituent for which the waste was listed) should be performed.
- ° The Total Oil and Grease analysis should be done to determine the percentage of oil and grease by weight. The method involves drying the waste and then extracting the constituent oil and grease with an organic solvent;
- ° If the Total Oil and Grease analysis shows that the total oil and grease content of the waste is 1 per cent or more, the Leachate Extraction Toxicity Test for Oily Wastes should be used (see Appendix B);
- ° Total organic carbon should be measured. In this test, organic carbon is converted to carbon



dioxide by analytic combustion or wet chemical oxidation. The  $\text{CO}_2$  formed can be measured or converted to methane ( $\text{CH}_4$ ) and measured. The amount of  $\text{CO}_2$  or  $\text{CH}_4$  is directly proportional to the concentration of carbonaceous material in the sample;

- ° The organic constituents most likely to be present in the waste should be identified and quantified.

If chromium, cyanide, and nickel are listed constituents, tests for these may be combined with the Leachate Extraction Procedure test. For the first two compounds, the following special procedures apply:

- ° The Leachate Extraction extract for total chromium and hexavalent chromium must be analysed separately. Initial and final pH data on the hexavalent chromium Leachate Extraction analysis must be reported. If the pH drops from an alkaline or neutral value to an acidic pH, then alkaline digestion of the waste is required before analysing for total concentration of hexavalent chromium;



- ° In cases of mercury contamination, both organic and inorganic forms of mercury shall be tested.
- ° A test should be conducted for extractable cyanide using the Leachate Extraction procedure, using distilled water only (instead of acetic acid) as the extract medium.

### 3.3 Description of Waste Management Practices

The applicant should describe how the wastes are presently managed. The description should include the following:

- ° A paragraph describing current waste management techniques (e.g. landfill, lime treatment, incineration, etc.) and the location of the waste management system (on-site or off-site);
- ° A schematic flow diagram of the waste management system, showing the processes (stock piling, bulking, barelling, etc.), equipment and storage methods used;
- ° The names and locations of any commercial treatment, storage, or disposal facilities that are used for the waste.



The applicant must also describe how the plan for disposal of the waste if the delisting application is approved. The following items should be included:

- ° A paragraph describing the modifications in the waste management practices usually used at the generation site;
- ° Identification of the proposed carrier and receiver of the delisted waste;
- ° Comprehensive evaluation of the selected disposal site as it relates to the following:
  - licence from MOE and authorization by the receiver to dispose of the waste at his site;
  - impact of additional waste on the operation of the waste disposal site and on the sewage treatment plant receiving the site leachate;
  - impact on air emission of fugitive dust at the landfill site;
  - leachate control program including leachate collection system or contingency plan (if applicable);





- sensitivity of ecosystems which could potentially be affected by delisted waste.

#### 4.0 HOW TO COMPLETE THE DELISTING APPLICATION FORMS

Before attempting to complete the delisting application forms, it is important that the applicant be familiar with the requirements and procedures of the delisting process, as detailed in the first three chapters of this manual.

Each numbered section in the application forms must be completed. Sections of the forms which do not apply to your specific application must be marked not applicable (NA).

Additional space is required to complete most of the sections, please attach additional sheets/documents at the end of the application forms as required; identify and reference these documents as Appendices (A to Z) in the application forms.



Please submit the completed delisting application to:

Hazardous Waste Listing/Delisting Unit  
Waste Management Branch, Area "M"  
Ontario Ministry of the Environment  
135 St. Clair Avenue West  
Toronto, Ontario  
M4V 1P5

#### 4.1 Part A: General Information

(See Figure 2)

##### Item A-1

A Generator Registration Number is issued by the MOE, after the applicant has submitted a Generator Registration Report (Regulation 309). The number is specific not only to the industry but also to the site where the hazardous waste is generated.

If the applicant does not have a Generator Registration Number for the specific site, the first step is to submit a Generator Registration Report to the Waste Management Branch for characterization and registration of the waste. (Forms are available at the Waste Management Branch, or at regional offices of MOE).



FIGURE 2: Delisting Application Form - Part A

**DELISTING APPLICATION FORM  
FOR HAZARDOUS WASTES**  
(Regulation 309, R.R.O. 1980)  
Ontario Ministry of the Environment

**INSTRUCTIONS:**

1. Please do not complete the attached application form until you have reviewed the Delisting Guidance Manual for Hazardous Wastes
2. Each numbered section in the application forms must be completed. If information requested is not clear, refer to the Delisting Guidance Manual (DGM). Sections of the forms which do not apply to your specific application must be marked not applicable (NA).
3. Additional space is required to complete most of the sections; please attach additional sheets/documents at the end of the application forms as required. Identify and reference these documents as Appendices (A to Z) in the application forms.
4. Please submit the completed delisting application to:  
Hazardous Waste Listing/Delisting Unit  
Waste Management Branch, Area 11  
Ontario Ministry of the Environment  
135 St. Clair Avenue West  
Toronto, Ontario  
M4V 1P5

(Rev. 01/2008)

**PART A: GENERATOR IDENTIFICATION**

1. Generator Registration Number
2. Initial Delisting Application
3. Revision/Update
4. Name of Generator ( corporate name, principal)
5. Name  Address  Prov.
6. Municipality  Postal Code
7. Waste Generation Site:
8. Site Name  Address  Prov.
9. Municipality  Postal Code
10. Names of contact (for clarification or for additional information) (Please print)
 

Name	Position/Company	Telephone
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
11. Description of waste to be considered for delisting (Refer to your HOC registration)
12. Waste Class (as registered by MOE)
13. Certification of Accuracy and Responsibility  
I certify that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiries, I confirm that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information.  
Name of Company Official  Position
14. Signature  Date

(Rev. 01/2008)



Item A-2

The applicant should check this box if it is the first delisting application presented to the MOE. In this case, a new file will be opened for the applicant. Any additional information (submitted afterwards) will be included in this file.

Item A-3

The applicant should check this box if the information submitted is a revision or update of the initial delisting application.

Items A-4, A-5 and A-6

The name of the company owning the site, plus the complete mailing address of the head office must be indicated here.

Items A-7, A-8, and A-9

The location where the waste is generated should be identified here. Each generation site must be registered separately with the MOE. A site has been specifically defined and means one property or several contiguous properties, owned or leased by the generator, where passage from one property to





the next may involve crossing, but not traveling along, a public highway. Item 9 refers to the local municipality (i.e. city, town, village or township) and not to a post office location, county or regional municipality.

Item A-10

The name(s), title(s) and telephone number(s) of the contact persons should be here. These persons should be familiar with the process of waste generation and management. Some of them should be able to answer technical questions relating to the delisting application, while others should be able to represent company policies or arrange meetings. The names and titles should be printed clearly.

Item A-11

A brief description of the waste submitted for delisting is entered here. A suitable description would be one similar to the one mentioned in the letter of acknowledgement from MOE during the generator registration process. More details on the waste generating process is required later in Part B of these forms.



Item A-12

The applicant should include here the waste class number indicated in the MOE letter of acknowledgment of waste registration.

Item A-13 and A-14

A company official who can act on behalf of the company must sign the report. Consultants or others who are not employees of the company cannot sign. The official's name and position (printed characters) and dated signature must be included. One of the contact persons identified in Item 10 may also be the company official signing the report.

4.2 Part B: Manufacturing Processes

The small boxes on the right-hand side of the form must be either checked off (to indicate that information is provided in Appendices) or be completed with NA (Not Applicable). (See Figure 3)

Item B-1

The applicant is required to give a description of the manufacturing processes related to the generation of waste subject to delisting. The lines



FIGURE 3: Delisting Application Form - Part B

**PART B: MANUFACTURING PROCESSES**

- Description of the manufacturing processes (including production lines, operation cycle, surface preparation and diagrams). (Include additional information in Appendices)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Assessment of Hazardousness**

- Select one : Approach A \_\_\_\_\_  
Approach B \_\_\_\_\_  
Special Procedures \_\_\_\_\_  
(Fill in box by check or NA)

**APPROACH A: (Include additional information in Appendices)**

- Material Inventory \_\_\_\_\_
- Material present in waste stream \_\_\_\_\_
- Material not in waste stream \_\_\_\_\_
- Other considerations \_\_\_\_\_

**Test results of representative samples**

- Number of samples \_\_\_\_\_
- Specific hazardous constituents \_\_\_\_\_
- Waste characteristics \_\_\_\_\_
- LEP test \_\_\_\_\_
- Total concentration of constituents (Sch 4) \_\_\_\_\_
- TOC \_\_\_\_\_
- Total oil/grease \_\_\_\_\_

**APPROACH B: (Include additional information in Appendices)**

- Review of constituents of Appendix C \_\_\_\_\_

**Test results of representative samples**

- Number of samples \_\_\_\_\_
- Specific hazardous constituents \_\_\_\_\_
- Other Appendix C constituents \_\_\_\_\_
- Hazardous characteristics \_\_\_\_\_
- LEP test \_\_\_\_\_
- TOC \_\_\_\_\_
- Total oil/grease \_\_\_\_\_

(Rev. 102 187)

**SPECIAL PROCEDURES: Petroleum Refining wastes**  
(Include additional information in Appendices)

**Test results of representative samples** (Fill in box by ✓ or NA)

- Number of samples \_\_\_\_\_
- Waste characteristics \_\_\_\_\_
- LEP test \_\_\_\_\_
- TOC \_\_\_\_\_
- Total oil/grease \_\_\_\_\_
- LEP/EP test \_\_\_\_\_
- Constituent of special industry \_\_\_\_\_
- Chromatographic scanning of organics \_\_\_\_\_
- Additional significant toxic constituents \_\_\_\_\_

**SPECIAL PROCEDURES: wastes from Multiple Waste Treatment Facilities**

(Include additional information in Appendices) (Fill in box by check or NA)

- Generator prescreening and waste identification \_\_\_\_\_
- Test results of representative samples \_\_\_\_\_
- Number of samples \_\_\_\_\_
- Waste characteristics \_\_\_\_\_
- LEP test \_\_\_\_\_
- TOC \_\_\_\_\_
- Total oil and grease \_\_\_\_\_
- Cyanide (total, free, leachable) \_\_\_\_\_
- Long term stability (if applicable) \_\_\_\_\_
- Other Appendix C constituents \_\_\_\_\_
- Statistics on waste types received \_\_\_\_\_
- Quality Control/Monitoring program \_\_\_\_\_

(Rev. 01/2006)



available in the application should be used to identify where, in any attached Appendices, the information can be found. Section 3.1.1 of this manual outlines the detailed requirements.

#### Item B-2

The applicant has to make a selection at this stage regarding the approach to be used in the identification of the constituents in the waste. Approach A relies on a material inventory to assess the nature of the waste. Approach B relies on a comprehensive sampling and analysis program of the waste. For certain types of industries, (eg. petroleum refining or multi-waste industries), the Special Procedures approach is required.

Section 3.1.2 of this manual provides more information on Approaches A and B.

Sections 3.1.3 and 3.1.4 explain in detail the Special Procedures for petroleum refinery and multi-waste industries.

The applicant should check one of the three boxes, indicating a selection, and should complete the selected section only. The two other sections are completed as NA (not applicable).





#### APPROACH A

Note: If approach A is selected, the applicant must provide a detailed inventory of the chemical used in the process, and explain his selection of constituents for analysis. This information should be included in appendices.

#### Item B-3

As detailed in Section 3.1.2 of this manual, paragraph A1, a material inventory should be prepared and attached as an appendix to the application forms.

#### Item B-4

A detailed listing of the constituents present in the waste should be included in the appendix (refer to paragraph A2, Section 3.1.2).

#### Item B-5

Constituents identified in Item 3 and not included in the waste should also be listed in the appendix (refer to paragraph A3, Section 3.1.2).



Item B-6

Other considerations should be addressed regarding the likelihood that other types of waste may be produced in the process (refer to paragraph A4, Section 3.1.2).

Item B-7

The number of samples is determined from the development of a representative sampling program. Section 3.2.2.1 of this manual reviews the criteria of a representative sample.

For record keeping, the number of samples taken, and results of which are presented in appendices, should be provided in this box.

Item B-8

The analytical results for the specific hazardous constituents for which the waste was listed originally should be presented in appendices. The constituents to be considered are included in Appendix C of this manual.

To determine the specific constituents for which a waste stream was listed in Schedule 1 (Regulation



309), the applicant may want to review the rationale for the listing with the listing/ delisting staff of the Waste Management Branch. This information is not available in Regulation 309.

Item B-9

For each sample, the hazardous waste characteristics (see Appendix A) should be addressed in appendices.

Item B-10

The Leachate Extraction Procedure (LEP) test results should be presented in appendices. The LEP is detailed in Regulation 309.

Any variations in the procedure used from the LEP should be indicated with the results. The reasons for and the effects on the results should be discussed in appendices.

Item B-11

The total concentrations of the contaminants indicated in Schedule 4 (Regulation 309) should be indicated in appendices.



Item B-12

The results of the total organic carbon (TOC) tests should be included also in appendices.

Item B-13

The results for total oil and grease should be presented in appendices.

APPROACH B

Item B-14

The applicant must provide a review of the constituents of Appendix C of this manual and explain the selection of constituents for analysis. This information should be included in appendices.

Item B-15

The number of samples is determined from the development of a representative sampling program. Section 3.2.2.1 of this manual reviews the criteria of a representative sample.





For record keeping, the number of samples taken, and the analytical results of which are presented in appendices, should be indicated in this box.

Item B-16

The analytical results of specific hazardous constituents for which the waste was listed (i.e., constituents listed in Appendix C of this manual) should be presented in appendices.

To determine the specific listed constituents from a waste stream identified in Schedule 1, the applicant may want to review the rationale of the listing with the listing/delisting staff of the Waste Management Branch. This information is not available in Regulation 309.

Item B-17

The applicant should provide in appendices the results of analysis for constituents identified in Item 14, and which are part of Appendix C of this manual.



Item B-18

The hazardous waste characteristics (see Appendix A) should be addressed in appendices. An explanation of why the waste does not exhibit a particular characteristic may be provided, in lieu of testing for that characteristic.

Item B-19

Test results of the Leachate Extraction Procedure (LEP) should be presented in appendices. The LEP is detailed in Regulation 309.

Any variations in the procedure used from the LEP should be indicated in the application. Reasons for variations and possible effects on the results should be addressed also.

Item B-20

The results of the Total Organic Carbon (TOC) test should be included in appendices.

Item B-21

The results of the test for total oil and grease should also be presented in appendices.



SPECIAL PROCEDURES: Petroleum Refinery

Note: If these Special Procedures have been selected, the applicant must complete Items 22 to 30 inclusive. Section 3.1.3 of this manual reviews the requirements.

Item B-22

The number of samples is determined from the development of a representative sampling program. Section 3.2.2.1 of this manual reviews the criteria of a representative sample.

For record keeping, the number of samples taken, the analytical results of which are presented in appendices, should be indicated in this box.

Item B-23

The hazardous waste characteristics (i.e., ignitability, corrosivity, reactivity and leachate toxicity, PCB's contamination and pathologic waste) should be addressed in appendices. An explanation of why the waste does not exhibit a particular characteristic may be provided, in lieu of testing for that characteristic.



Item B-24

The results of the Leachate Extraction Procedure (LEP) should be presented in appendices. The LEP is detailed in Regulation 309. Depending on the results of the total oil/grease test, (Item 26), this test can be done at the same time as the extraction procedure for oily waste (Item 27).

Item B-25

The results of the Total Organic Carbon (TOC) test should be included in appendices.

Item B-26

The results of the test for total oil and grease should also be presented in appendices.

Item B-27

If the results of the test for total oil/grease (Item 26) is above one per cent, the Extraction Procedure (EP) for oily waste (Appendix B) will be conducted with the LEP test and results submitted in appendices.





Item B-28

For each of the samples, the total concentration of constituents listed in Table 1 of this manual (Section 3.1.3) should be presented in appendices. Some of these constituents already have been included in the tests for leachate toxic metals.

Item B-29

A chromatographic scanning for organics and identification of important peaks should be carried out and the results presented in appendices.

Item B-30

The applicant should make an assessment of the potential for any additional significant toxic constituents that may be present in the waste. Considerations such as start-up and shut down operations, maintenance, spills, leaks and other accidents should be included in appendices.



SPECIAL PROCEDURES: Multiple Wastes Treatment

Note: If these Special Procedures have been selected, the applicant should complete Items 31 to 41 inclusive. Section 3.1.4 of this manual reviews the requirements.

Item B-31

Due to the nature of the waste generation, the procedures used in the prescreening of the generators or carriers shipping the material/waste to the facilities should be included in appendices. The procedures for identification and classification of the wastes received should also be included.

Item B-32

The number of samples is determined from the development of a representative sampling program. Section 3.2.2.1 of this manual reviews the criteria of a representative sample. For record keeping, the number of samples taken, (the analytical results of which are presented in appendices) should be indicated in this box.



Item B-33

The hazardous waste characteristics (i.e., ignitability, corrosivity, reactivity and leachate toxicity, PCB's contamination and pathologic waste) should be addressed in appendices. An explanation of why the waste does not exhibit a particular characteristic may be provided, in lieu of testing for that characteristic.

Item B-34

The results of the Leachate Extraction Procedure (LEP) should be presented in appendices. The LEP is detailed in Regulation 309.

Item B-35

The results of the Total Organic Carbon (TOC) test should be included in appendices.

Item B-36

The results of the tests for total oil and grease should be presented in appendices.



Item B-37

All forms of cyanide should be analyzed in the samples, including total free cyanides. Leachable cyanide should be analyzed under the LEP test (Item B-34).

Item B-38

If the treatment residues have been stabilized and/or solidified by any process, the long-term stability of the product is very crucial. Description of the testing protocols and results of the test should be presented in appendices.

Item B-39

Test results for all constituents which are reasonably expected to be present in the treatment residues should be presented in appendices. The rationale for not testing for certain constituents must be included.





Item B-40

Statistics on the types of wastes received over a 12 month period should be related to the types of wastes sampled and tested for this delisting application. The statistics should include the type of waste, the quantity and the source of the materials/wastes.

Item B-41

The quality control and monitoring program is related to the characterization of the treatment residues that need to be disposed of. The program will identify parameters such as frequency of sampling, sampling procedures, selection of contaminants to be listed, testing methods and decision making on waste disposal practices.

This program should be developed and reviewed with the assistance of the Waste Management Branch (MOE).

4.3 Part C: Waste Stream

Note: Section 3.2 of this manual provides additional information about the requirements for waste stream description. (See Figure 4)



Item C-1

The applicant should provide a description of the waste stream in appendices. The description of the stream should be tied in with the description of the manufacturing process (Item 1, Part A of the delisting forms). The description should provide enough information to MOE to fully understand the waste generating process.

Item C-2

The Waste Class (MOE number) and the Product Identification Number (PIN) as required by the Transportation of Dangerous Goods Act (TDGA), should be included in the individual boxes.

Item C-3

The physical state of the waste (ie. solid, liquid, or gas) and the percentage of solid of the waste should be included here.



**PART C: WASTE STREAM**

- |  |  |
|--|--|
|  |  |
|--|--|

- |    |                               |  |                 |                                     |
|----|-------------------------------|--|-----------------|-------------------------------------|
| 2  | Waste Class<br>Physical State | <div></div> <div></div>                                | PIN (TUGA)      | <div></div> <div></div>             |
| 3. |                               |  | % Solid         | <div></div> <div></div>             |
| 4  | Amount generated              | Average (units)<br><div></div> <div></div> <div></div> | Maximum (units) | <div></div> <div></div> <div></div> |
|    |                               | Monthly<br><div></div> <div></div> <div></div>         |                 |                                     |
|    |                               | Yearly<br><div></div> <div></div> <div></div>          |                 |                                     |

- Waste Sampling Program (Include additional information in Appendices)**  
(Fill in box by J or MA)
- |     |                                      |  |
|-----|--------------------------------------|--|
| 5.  | Rationale of representative sampling |  |
| 6.  | Time variability                     |  |
| 7.  | Space variability                    |  |
| 8.  | Description of sampling equipment    |  |
| 9.  | Description of sampling techniques   |  |
| 10. | Sample handling/documentation        |  |

- Waste analytical methods
- Four hazardous waste characteristics \_\_\_\_\_
- Constituents \_\_\_\_\_
- QAC/C \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_

## PART D : WASTE MANAGEMENT PRACTICES

- Description of waste management practices
- 
- (include additional information in Appendices)

1. Present waste management \_\_\_\_\_
2. Planned waste management for delisted waste \_\_\_\_\_



Item C-4

The amount of waste generated should be identified in the respective boxes. The monthly average should be derived from the estimated annual generation. Maximum monthly generation should be derived from the maximum generation, in any 30 day period of the year. Metric units should also be specified for each figure.

Item C-5

The description of the waste sampling program, (attached in appendices) the applicant should present the rationale used in the development of a representative sampling. As outlined in Section 3.2.2 of this manual, this rationale should be based in part on considerations of how the waste generating process itself varies.

Item C-6

The applicant should address the question of representative sample when the nature or the concentration of the waste may vary in time. (Refer to this manual, Section 3.2.2.1).





Item C-7

The questions of possible variation in the nature of the waste and the concentration of the contaminants should be addressed if the waste is accumulated at one location (i.e. drums, tank lagoon, piles) before sampling and disposing (Section 3.2.2.1).

Item C-8

The sampling equipment should be described in terms of standard sampling equipment (see Section 3.2.2.2); any variations from the standard equipment must be indicated.

Item C-9

The sampling techniques should be described in detail, indicating preparation of equipment, sampling operations with related equipment and sample transfer from sampler to sample containers (see Section 3.2.2.3).

Item C-10

A brief description of the sample handling between the sample collection operation and the laboratory



testing operation should be included in appendices. Sample documentation and codes should also be provided (see Section 3.2.2.4).

Item C-11

A brief description of the analytical methods used in the testing for hazardous characteristics should be included in appendices (see Section 3.2.3.1).

Item C-12

A brief description of the analytical methods used in the testing of certain additional constituents should be included in appendices (e.g. cyanide, metals, total oil and grease, TOC, and representative organics) (see Section 3.2.4.2)

Item C-13

A detailed description of the Quality Assurance and Quality Control (QA/QC) should be included in appendices. (see Section 3.2.4)



4.4 Part D: Waste Management Practices

Item D-1

The applicant should describe how the waste is presently managed. (Refer to Section 3.3.)

Item D-2

The applicant must also describe the plan for disposal of the waste, if the delisting application is approved. (Refer to Section 3.3.)

GC/gm  
January 27, 1988  
CO 01 43  
0157R/P



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Ministry of the Environment, Waste Management Branch  
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3. USEPA, November 1980. Background Document.  
Resource Conservation and Recovery Act, (RCRA),  
Identification and Listing of Hazardous Waste,  
Office of Solid Waste,  
(Available from the USEPA offices, Washington, D.C.  
U.S.A.)





## APPENDIX A

### Hazardous Waste Definitions

Section 1, (27) of Regulation 309 defines Hazardous Waste as a waste that is:

- i) Hazardous Industrial Waste (Schedule 1)
- ii) Acute Hazardous Waste Chemical (Schedule 2, Part A)
- iii) Hazardous Waste Chemical (Schedule 2, Part B)
- iv) Severely Toxic Waste (Schedule 3)
- v) Ignitable Waste
- vi) Corrosive Waste
- vii) Reactive Waste
- viii) Radioactive Waste
- ix) Pathological Waste
- x) Leachate Toxic Waste
- xi) PCB Waste as defined in Ontario Regulation 11/82

The first four types of wastes have been identified based on toxicity and hazardousness of typical industrial wastes streams and individual contaminants, and are listed in Schedule 1, 2 and 3. The remaining waste types are defined by their hazardous characteristics, as detailed in the following paragraphs.



Ignitable Waste

Wastes that are Ignitable, as defined in Regulation 309 by any of the following four criteria, are Hazardous:

1. It is a liquid, other than an aqueous solution containing less than 24 per cent alcohol by volume, and has a flash point less than 61°C as determined by any of the following test methods:

ASTM D-56-79,  
ASTM D-3243-77,  
ASTM D-3278-78,  
ASTM D-93-79

Examples of Ignitable liquid waste include ethanol, var-sol, gasoline, petroleum distillates or paint thinners.

2. It is a solid and is capable, under standard temperature and pressure, of causing fire due to friction, absorption of moisture, or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

An example of Ignitable solid waste is magnesium dust.



3. It is an ignitable compressed gas as defined by Class 2, Division 1 of the Federal Transportation of Dangerous Goods Regulation (TDGR)\*.

Class 2, Division 1 gases are defined as substances that:

- a) have a critical temperature less than 50°C or an absolute vapour pressure greater than 294 kPa at 50°C;

or

- b) exert an absolute pressure, in the cylinder, packaging tube or tank in which it is contained, greater than  $275 \pm 1$  kPa at 21.1°C or  $717 \pm 2$  kPa at 54.4°C.

and

- (i) are ignitable at normal atmospheric pressure when in a mixture of 13 per cent or less by volume with air,

or

- (ii) have a flammability range of at least 12.



Examples of Ignitable compressed gasses include methane (natural gas), butane or butane mixtures, and propane.

4. It is an oxidizing substance as defined by Class 5 of the TDGR.\*

This includes substances such as chlorates, permanganates, and nitrates which readily yield oxygen to stimulate, or contribute to, the combustion of other materials. Substances that contain the bivalent -O-O- structure are also considered to be oxidizers.

- \* For copies of the Transportation of Dangerous Goods Regulations (TDGR) contact the Department of Supply and Services Canada in Ottawa at (613) 997-2560 (Document Number SOR/85-77).

#### Corrosive Wastes

Wastes that are Corrosive as defined in Regulation 309 by any of the following two criteria are Hazardous.

1. It is aqueous and has a pH less than or equal to 2.0 or greater than or equal to 12.5.





2. It is liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 millimetres per year at a test temperature of 55°C using the National Association of Corrosion Engineers (NACE) test method TM-01-69.

### Reactive Wastes

The Reactive wastes definition presented in Regulation 309 encompasses a number of diverse properties. Generally, the intent is to include wastes that are susceptible to violent/vigorous reactions or are likely to generate toxic fumes. The following criteria are used to define Reactive wastes in Regulation 309.

1. It is normally unstable and readily undergoes violent change without detonating.
2. It reacts violently with water.
3. It forms potentially explosive mixtures with water.
4. When mixed with water it generates toxic gases, vapours or fumes in a quantity sufficient to present danger to human health or the environment.



5. It is a cyanide or sulphide bearing waste which, when exposed to pH conditions between 2.0 and 12.5, can generate toxic gases, vapours or fumes in a quantity sufficient to present danger to human health or the environment.
6. It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.
7. It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.
8. It is a Class I explosive as defined by the TDGR. Schedule II List I of TDGR lists most Class 1 explosives.

#### Radioactive Waste

At present, there are no radioactive wastes under Ontario jurisdiction. Radioisotope waste may however be disposed of in non-hazardous waste landfills in accordance with the written instruction of the Atomic Energy Control Board.



### Pathological Waste

The following definition in Regulation 309 has been developed to identify Pathological waste. The descriptions are for the most part self-explanatory.

Pathological waste means:

- i) any part of the human body, including tissues and bodily fluids, but excluding fluids, extracted teeth, hair, nail clippings and the like, that are not infectious.
- ii) any part of the carcass of an animal infected with a communicable disease or suspected by a licensed veterinary practitioner to be infected with a communicable disease, or
- iii) non-anatomical waste infected with communicable disease.

### Leachate Toxic Waste

Wastes that contain the contaminants listed in Schedule 4 of Regulation 309 such that they can leach out in concentrations that exceed 100 times the concentrations shown in the Schedule are Hazardous. The Leachate Extraction Procedure, included as part of Regulation 309, is used to make this determination.



PCB Waste

The legal definition for PCB Wastes is provided in Ontario Regulation 11/82. Wastes that contain PCBs at concentrations greater than 50 parts per million (ppm), by weight, are PCB Wastes. Refer to Regulation 11/82 for further details.

27/01/88

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## APPENDIX B

### Extraction Procedure for Oily Waste

1. Separate the sample (minimum 100 g) into its solid and liquid components. The liquid component is defined as that portion of the sample which passes through a 0.45  $\mu$ m filter media under a pressure differential of 75 psi.
2. Determine the quantity of liquid (mL) and the concentration of the toxicants of concern in the liquid phase (mg/L).
3. Place the solid phase into a Soxhlet extractor, charge the concentration flask with tetrahydrofuran, and extract for 3 hours.
4. Remove the flask containing tetrahydrofuran and replace it with one containing toluene.
5. Extract the solid for a second time, for 3 hours, with the toluene.



6. Combine the tetrahydrofuran and toluene extracts.
7. Analyse the combined extracts for the toxicants of concern.
8. Determine the quantity of liquid (mL) and the concentration of the toxicants of concern in the combined extracts (mg/L).
9. Take the solid material remaining in the Soxhlet thimble and dry it at 100°C for 30 minutes.
10. Run the Leachate Extraction Procedure (Regulation 309) on the solid material.
11. Calculate the mobile metal concentration (MMC) using the following formula:

$$MMC = 1000 ([Q_1 + Q_2 + Q_3]/[L_1 + L_2])$$

$Q_1$  = Amount (mg) of toxicant in initial liquid phase of sample (amount of liquid X concentration of toxicant)

$Q_2$  = Amount (mg) of toxicant in combined organic extracts of sample (amount of liquid X concentration of toxicant)



$Q_3$  = Amount (mg) of toxicant in LEP extract of solid  
(amount of extract X concentration of toxicant)

$L_1$  = Amount of initial liquid (mL)

$L_2$  = Amount of liquid (mL) in LEP (weight of dried  
solid (step 9) X 20)



## HAZARDOUS CONSTITUENTS\*

\* (Original listing from 40 CFR 261, App. VIII, 1984)

Acetonitrile (Ethanenitrile)  
 Acetophenone (Ethanone, 1-phenyl)  
 3-(alpha-Acetylbenzyl)-4-hydroxycoumarin and salts (Warfarin)  
 2-Acetylaminofluorene (Acetamide, N-(9H-fluoren-2-yl)-)  
 Acetyl chloride (Ethanoyl chloride)  
 1-Acetyl-2-thiourea (Acetamide, N-(aminoethoxymethyl)-)  
 Acrolein (2-Propenal)  
 Acrylamide (2-Propenamide)  
 Acrylonitrile (2-Propenenitrile)  
 Aflatoxins  
 Aldrin (1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a,8b-hexahydro-endo,exo-1,4:5,8-Dimethanonaphthalene)  
 Allyl alcohol (2-Propen-1-ol)  
 Aluminum phosphide  
 4-Aminobiphenyl ([1,1'-Biphenyl]-4-amine)  
 6-Amino-1,1a,2,8,8a,8b-hexahydro-8-(hydroxymethyl)-8a-methoxy-5-methyl-carbamate azirino[2,3':3,4]pyrrolo[1,2-a]indole-4,7-dione, (ester) (Mitomycin C)  
 (Azirino[2,3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[(aminomethyl)-oxy]methyl)-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-5-(aminomethyl)-3-isoxazolol (3(2H)-Isoxazolone, 5-(aminomethyl)-4-Aminopyridine (4-Pyridinamine)  
 Amitrole (1H-1,2,4-Triazol-3-amine)  
 Aniline (Benzenamine)  
 Antimony and compounds, N.O.S.\*  
 Aramite (Sulfurous acid, 2-chloroethyl-,2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl ester)  
 Arsenic and compounds, N.O.S.\*

Arsenic acid (Orthoarsenic acid)  
 Arsenic pentoxide (Arsenic (V) oxide)  
 Arsenic trioxide (Arsenic (III) oxide)  
 Auramine (Benzenamine, 4,4'-carbonimidoylbis[N,N-Dimethyl-, mono-hydrochloride])  
 Azaserine (L-Serine, diazoacetate (ester))  
 Barium and compounds, N.O.S.\*  
 Barium cyanide  
 Benz[c]acridine (3,4-Benzacridine)  
 Benz[a]anthracene (1,2-Benzanthracene)  
 Benzene (Cyclohexatriene)  
 Benzenearsonic acid (Arsonic acid, phenyl-) Benzene, dichloromethyl-(Benzal chloride)  
 Benzenethiol (Thiophenol)  
 Benzidine ([1,1'-Biphenyl]-4,4'diamine)  
 Benzol[b]fluoranthene (2,3-Benzofluoranthene)  
 Benzol[j]fluoranthene (7,8-Benzofluoranthene)  
 Benzol[a]pyrene (3,4-Benzopyrene)  
 p-Benzoquinone (1,4-Cyclohexadienedione)  
 Benzotrichloride (Benzene, trichloromethyl)  
 Benzyl chloride (Benzene, (chloromethyl)-) Beryllium and compounds, N.O.S.\*  
 Bis(2-chloroethoxy)methane (Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-])  
 Bis(2-chloroethyl) ether (Ethane, 1,1'-oxybis[2-chloro-])  
 N,N-Bis(2-chloroethyl)-2-naphthylamine (Chlornaphazine)  
 Bis(2-chloroisopropyl) ether (Propane, 2,2'-oxybis[2-chloro-])  
 Bis(chloromethyl) ether (Methane, oxybis[chloro-])  
 Bis(2-ethylhexyl) phthalate (1,2-Benzenedi-





- carboxylic acid, bis(2-ethylhexyl)ester)  
 Bromoacetone (2-Propanone, 1-bromo-)  
 Bromomethane (Methyl bromide)  
 4-Bromophenyl phenyl ether (Benzene, 1-bromo-4-phenoxy-)  
 Brucine (strychnidin-10-one, 2,3-dimethoxy)  
 2-Butanone peroxide (Methyl ethyl ketone, peroxide)  
 Butyl benzyl phthalate (1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester)  
 2-sec-Butyl-4,6-dinitrophenol (DNBP)  
 (Phenol, 2,4-dinitro-6-(1-methylpropyl)-)  
 Cadmium and compounds, N.O.S.  
 Calcium chromate (Chromic acid, calcium salt)  
 Calcium cyanide  
 Carbon disulfide (Carbon bisulfide)  
 Carbon oxyfluoride (Carbonyl fluoride)  
 Chloral (Acetaldehyde, trichloro-)  
 Chlorambucil (Butanoic acid, 4-[bis(2-chloroethyl)amino]benzene-)  
 Chlordane (alpha and gamma isomers) (4,7-Methanoindan, 1,2,4,5,6,7,8-octachloro-3,4,7,7a-tetrahydro-) (alpha and gamma isomers)  
 Chlorinated benzenes, N.O.S.\*  
 Chlorinated ethane, N.O.S.\*  
 Chlorinated fluorocarbons, N.O.S.\*  
 Chlorinated naphthalene, N.O.S.\*  
 Chlorinated phenol, N.O.S.\*  
 Chloroacetaldehyde (Acetaldehyde, chloro-)  
 Chloroalkyl ethers, N.O.S.\*  
 p-Chloroaniline (Benzenamine, 4-chloro-)  
 Chlorobenzene (Benzene, chloro-)  
 Chlorobenzilate (Benzenecetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-ethyl ester)  
 2-Chloro-1, 3-butadiene (chloroprene)  
 p-Chloro-m-cresol (Phenol, 4-chloro-3-methyl)  
 1-Chloro-2,3-epoxypropane (Oxirane, 2-(chloromethyl)-)  
 2-Chloroethyl vinyl ether (Ethene, (2-chloroethoxy)-)
- Chloroform (Methane, trichloro-)  
 Chloromethane (Methyl chloride)  
 Chloromethyl methyl ether (Methane, chloromethoxy-)  
 2-Chloronaphthalene (Naphthalene, beta-chloro-)  
 2-Chlorophenol (Phenol, o-chloro-)  
 1-(o-Chlorophenyl)thiourea (Thiourea, (2-chlorophenyl)-)  
 3-Chloropropene (allyl chloride)  
 3-Chloropropionitrile (Propanenitrile, 3-chloro-)  
 Chromium and compounds, N.O.S.\*  
 Chrysene (1,2-Benzophenanthrene)  
 Citrus red No. 2 (2-Naphthol, 1-[(2,5-dimethoxyphenyl)azo]-)  
 Coal tars  
 Copper cyanide  
 Creosote (Creosote, wood)  
 Cresols (Cresylic acid) (Phenol, methyl-)  
 Crotonaldehyde (2-Butenal)  
 Cyanides (soluble salts and complexes), N.O.S.\*  
 Cyanogen (Ethanedinitrile)  
 Cyanogen bromide (Bromine cyanide)  
 Cyanogen chloride (Chlorine cyanide)  
 Cycasin (beta-D-Glucopyranoside, (methyl-ONN-azoxy)methyl-)  
 2-Cyclohexyl-4,6-dinitrophenol (Phenol, 2-cyclohexyl-4,6-dinitro-)  
 Cyclophosphamide (2H-1,3,2, 2-Oxazaphosphorine, [bis(2-chloroethyl)amino]-tetrahydro-, 2-oxide)  
 Daunomycin (5,12-Naphthacenedione, (8S-cis)-8-acetyl-10-[(3-amino-2,3,6-trideoxy)-alpha-L-lyxo-hexopyranosyl]oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-)  
 DDD (Dichlorodiphenyldichloroethane)  
 (Ethane, 1,1-dichloro-2,2-bis(p-chlorophenyl)-)  
 DDE (Ethylene, 1,1-dichloro-2,2-bis(4-chlorophenyl)-)  
 DDT (Dichlorodiphenyltrichloroethane)  
 (Ethane, 1,1,1-trichloro-2,2-bis(p-chlorophenyl)-)



- Diallate (S-(2,3-dichloroallyl) diisopropylthiocarbamate)
- Dibenz[a,h]acridine (1,2,5,6-Dibenzacridine)
- Dibenz[a,j]acridine (1,2,7,8-Dibenzacridine)
- Dibenz[a,h]anthracene (1,2,5,6-Dibenzanthracene)
- 7H-Dibenzo[c,g]carbazole (3,4,5,6-Dibenzcarbazole)
- Dibenzo[a,e]pyrene (1,2,4,5-Dibenzpyrene)
- Dibenzo[a,h]pyrene (1,2,5,6-Dibenzpyrene)
- Dibenzo[a,i]pyrene (1,2,7,8-Dibenzpyrene)
- 1,2-Dibromo-3-chloropropane (Propane, 1,2-dibromo-3-chloro-)
- 1,2-Dibromoethane (Ethylene dibromide)
- Dibromomethane (Methylene bromide)
- Di-n-butyl phthalate (1,2-Benzenedicarboxylic acid, dibutyl ester)
- o-Dichlorobenzene (Benzene, 1,2-dichloro-)
- m-Dichlorobenzene (Benzene, 1,3-dichloro-)
- p-Dichlorobenzene (Benzene, 1,4-dichloro-)
- Dichlorobenzene, N.O.S.\* (Benzene, dichloro-, N.O.S.\*)
- 3,3'-Dichlorobenzidine ([1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-)
- 1,4-Dichloro-2-butene (2-Butene, 1,4-dichloro-)
- Dichlorodifluoromethane (Methane, dichlorodifluoro-)
- 1,1-Dichloroethane (Ethylidene dichloride)
- 1,2-Dichloroethane (Ethylene dichloride)
- trans-1,2-Dichloroethene (1,2-Dichloroethylene)
- Dichloroethylene, N.O.S.\* (Ethene, dichloro-, N.O.S.\*)
- 1,1-Dichloroethylene (Ethene, 1,1-dichloro-)
- Dichloromethane (Methylene chloride)
- 2,4-Dichlorophenol (Phenol, 2,4-dichloro-)
- 2,6-Dichlorophenol (Phenol, 2,6-dichloro-)
- 2,4-Dichlorophenoxyacetic acid (2,4-D), salts and esters (Acetic acid, 2,4-dichlorophenoxy-, salts and esters)
- Dichlorophenylarsine (Phenyl dichloroarsine)
- Dichloropropane, N.O.S.\* (Propane, dichloro-, N.O.S.\*)
- 1,2-Dichloropropane (Propylene dichloride), Dichloropropanol, N.O.S.\* (Propanol, dichloro-, N.O.S.\*)
- Dichloropropene, N.O.S.\* (Propene, dichloro-, N.O.S.\*)
- 1,3-Dichloropropene (1-Propene, 1,3-dichloro-)
- Dieldrin (1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octa-hydro-endo,exo-1,4:5,8-Dimethanonaphthalene)
- 1,2,3,4-Diepoxybutane (2,2'-Bioxirane)
- Diethylarsine (Arsine, diethyl-)
- N,N-Diethylhydrazine (Hydrazine, 1,2-diethyl)
- O,O-Diethyl S-methyl ester of phosphorodithioic acid (Phosphorodithioic acid, O,O-diethyl S-methyl ester)
- O,O-diethyl phosphoric acid, O-p-nitrophenyl ester (Phosphoric acid, diethyl p-nitrophenyl ester)
- Diethyl phthalate (1,2-Benzenedicarboxylic acid, diethyl ester)
- O,O-Diethyl O-2-pyrazinyl phosphorothioate (Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester)
- Diethylstilbesterol (4,4'-Stilbenediol, alpha,alpha-diethyl, bis(dihydrogen phosphate, (E)-)
- Dihydrosafrrole (Benzene, 1,2-methylene dioxy-4-propyl-)
- 3,4-Dihydroxy-alpha-(methylamino)methyl benzyl alcohol (1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-)
- Diisopropylfluorophosphate (DIP) (Phosphorofluoridic acid, bis(1-methylethyl) ester)
- Dimethoate (Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester)
- 3,3'-Dimethoxybenzidine ([1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-)
- p-Dimethylaminoazobenzene (Benzenamine, N,N-dimethyl-4-(phenylazo)-)
- 7,12-Dimethylbenz[a]anthracene (1,2-Benzanthracene, 7,12-dimethyl-)



- 3,3'-Dimethylbenzidine ([1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-)  
 Dimethylcarbamoyl chloride (Carbamoyl chloride, dimethyl-)  
 1,1-Dimethylhydrazine (Hydrazine, 1,1-dimethyl-)  
 1,2-Dimethylhydrazine (Hydrazine, 1,2-dimethyl-)  
 3,3-Dimethyl-1-(methylthio)-2-butanone, O-[(methylamino) carbonyl]oxime (Thio-fanox alpha, alpha-Dimethylphenethylamine (Eth- anamine, 1,1-dimethyl-2-phenyl-)  
 2,4-Dimethylphenol (Phenol, 2,4-dimethyl-)  
 Dimethyl phthalate (1,2-Benzenedicarboxylic acid, dimethyl ester)  
 Dimethyl sulfate (Sulfuric acid, dimethyl ester)  
 Dinitrobenzene, N.O.S.\* (Benzene, dinitro-, N.O.S.\*)  
 4,6-Dinitro-o-cresol and salts (Phenol, 2,4-dinitro-6-methyl-, and salts)  
 2,4-Dinitrophenol (Phenol, 2,4-dinitro-)  
 2,4-Dinitrotoluene (Benzene, 1-methyl-2,4-dinitro-)  
 2,6-Dinitrotoluene (Benzene, 1-methyl-2,6-dinitro-)  
 Di-n-octyl phthalate (1,2-Benzenedicarboxylic acid, dioctyl ester)  
 1,4-Dioxane (1,4-Diethylene oxide)  
 Diphenylamine (Benzenamine, N-phenyl-)  
 1,2-Diphenylhydrazine (Hydrazine, 1,2-diphenyl-)  
 Di-n-propylnitrosamine (N-Nitroso-di-n-propylamine)  
 Disulfoton (O,O-diethyl S-[2-(ethylthio)ethyl] phosphorodithioate)  
 2,4-Dithiobiuret (Thioimiddicarbonyl diamide)  
 Endosulfan (5-Norbornene, 2,3-dimethanol, 1,4,5,6,7,7-hexachloro-, cyclic sulfite)  
 Endrin and metabolites (1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo,endo-1,4:5,8-dimethanonaphthalene, and metabolites)  
 Ethyl carbamate (Urethan) (Carbamic acid, ethyl ester)  
 Ethyl cyanide (propanenitrile)  
 Ethylenebisdithiocarbamic acid, salts and esters (1,2-Ethanediybiscarbamodithioic acid, salts and esters)  
 Ethyleneimine (Aziridine)  
 Ethylene oxide (Oxirane)  
 Ethylenethiourea (2-Imidazolidinethione)  
 Ethyl methacrylate (2-Propenoic acid, 2-methyl-, ethyl ester)  
 Ethyl methanesulfonate (Methanesulfonic acid, ethyl ester)  
 Fluoranthene (Benzo[j,k]fluorene)  
 Fluorine  
 2-Fluoroacetamide (Acetamide, 2-fluoro-)  
 Fluoroacetic acid, sodium salt (Acetic acid, fluoro-sodium salt)  
 Formaldehyde (Methylene oxide)  
 Formic acid (Methanoic acid)  
 Glycidylaldehyde (1-Propanol-2,3-epoxy)  
 Halomethane, N.O.S.\*  
 Heptachlor (4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-)  
 Heptachlor epoxide (alpha, beta, and gamma isomers) (4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-2,3-epoxy-3a,4,7,7-tetrahydro-, alpha, beta, and gamma isomers)  
 Hexachlorobenzene (Benzene, hexachloro-)  
 Hexachlorobutadiene (1,3-Butadiene, 1,1,2,3,4,4-hexachloro-)  
 Hexachlorocyclohexane (all isomers) (Lindane and isomers)  
 Hexachlorocyclopentadiene (1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-)  
 Hexachloroethane (Ethane, 1,1,1,2,2,2-hexachloro-)  
 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo,endo-dimethanonaphthalene (Hexachlorohexahydro-endo,endo-dimethanonaphthalene)  
 Hexachlorophene (2,2'-Methylenebis(3,4,6-trichlorophenol))



Hexachloropropene (1-Propene, 1,1,2,3,3,3-hexachloro-)  
 Hexaethyl tetraphosphate (Tetraphosphoric acid, hexaethyl ester)  
 Hydrazine (Diamine)  
 Hydrocyanic acid (Hydrogen cyanide)  
 Hydrofluoric acid (Hydrogen fluoride)  
 Hydrogen sulfide (Sulfur hydride)  
 Hydroxydimethylarsine oxide (Cacodylic acid) Indeno(1,2,3-cd)pyrene (1,10-(1,2-phenylene)pyrene)  
 Iodomethane (Methyl iodide)  
 Iron dextran (Ferric dextran)  
 Isocyanic acid, methyl ester (Methyl isocyanate)  
 Isobutyl alcohol (1-Propanol, 2-methyl-1-)  
 Isosafrole (Benzene, 1,2-methylenedioxy-4-allyl-)  
 Kepone (Decachlorooctahydro-1,3,4-Methano-2H-cyclobuta[cd]pentalen-2-one)  
 Lasiocarpine (2-Butenoic acid, 2-methyl-, 7-[(2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy)methyl]-2,3,5,7a-tetrahydro-1H-pyrrrolizin-1-yl ester)  
 Lead and compounds, N.O.S.\*  
 Lead acetate (Acetic acid, lead salt)  
 Lead phosphate (Phosphoric acid, lead salt)  
 Lead subacetate (Lead, bis(acetato-O)tetrahydroxytri-)  
 Maleic anhydride (2,5-Furandione)  
 Maleic hydrazide (1,2-Dihydro-3,6-pyridazine-1,4-dione)  
 Malononitrile (Propanedinitrile)  
 Melphalan (Alanine, 3-(p-bis(2-chloroethyl)amino)phenyl-, L-)  
 Mercury fulminate (Fulminic acid, mercury salt)  
 Mercury and compounds, N.O.S.\*  
 Methacrylonitrile (2-Propenenitrile, 2-methyl-1-)  
 Methanethiol (Thiomethanol)  
 Methapyrilene (Pyridine, 2-[(2-dimethylamino)ethyl]-2-thenylamino-)

Metholmyl (Acetimidic acid, N-[(methylcarbamoyl)oxy]thio-, methyl ester)  
 Methoxychlor (Ethane, 1,1,1-trichloro-2,2'-bis(p-methoxyphenyl)-)  
 2-Methylaziridine (1,2-Propylenimine)  
 3-Methylcholanthrene  
 (Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-)  
 Methyl chlorocarbonate (Carbonochloridic acid, methyl ester)  
 4,4'-Methylenebis(2-chloroaniline) (Benzenamine, 4,4'-methylenebis-(2-chloro-))  
 Methyl ethyl ketone (MEK) (2-Butanone)  
 Methyl hydrazine (Hydrazine, methyl-)  
 2-Methylacetonitrile (Propanenitrile, 2-hydroxy-2-methyl-)  
 Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester)  
 Methyl methanesulfonate (Methanesulfonic acid, methyl ester)  
 2-Methyl-2-(methylthio)propionaldehyde-O-(methylcarboxyl) oxime (Propanal, 2-methyl-2-(methylthio)-, [(methylamino)carbonyl]oxime)  
 N-Methyl-N'-nitro-N-nitrosoquinidine (Guadinine, N-nitroso-N-methyl-N'-nitro-)  
 Methyl parathion (O,O-dimethyl O-(4-nitrophenyl) phosphorothioate)  
 Methylthiouacil (4-lH-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-)  
 Mustard gas (Sulfide, bis(2-chloroethyl)-) Naphthalene  
 1,4-Naphthoquinone (1,4-Naphthalenedione)  
 1-Naphthylamine (alpha-Naphthylamine)  
 2-Naphthylamine (beta-Naphthylamine)  
 1-Naphthyl-2-thiourea (Thiourea, 1-naphthalenyl-)  
 Nickel and compounds, N.O.S.\*  
 Nickel carbonyl (Nickel tetracarbonyl)  
 Nickel cyanide (Nickel (II) cyanide)  
 Nicotine and salts (Pyridine, (S)-3-(1-methyl-2-pyrrolidinyl)-, and salts)





- Nitric oxide (Nitrogen (II) oxide)  
 p-Nitroaniline (Benzenamine, 4-nitro-)  
 Nitrobenzene (Benzene, nitro-)  
 Nitrogen dioxide (Nitrogen (IV) oxide)  
 Nitrogen mustard and hydrochloride salt  
 (Ethanamine, 2-chloro-, N-(2-chloroethyl)-N-methyl-, and hydrochloride salt)  
 Nitrogen mustard N-Oxide and hydrochloride salt (Ethanamine, 2-chloro-, N-(2-chloroethyl)-N-methyl-, and hydrochloride salt)  
 Nitroglycerine (1,2,3-Propanetriol, trinitrate)  
 4-Nitrophenol (Phenol, 4-nitro-)  
 4-Nitroquinoline-1-oxide (Quinoline, 4-nitro-1-oxide-)  
 Nitrosamine, N.O.S.\*  
 N-Nitrosodi-n-butylamine (1-Butanamine, N-butyl-N-nitroso-)  
 N-Nitrosodiethanolamine (Ethanol, 2,2'-(nitrosoimino)bis-)  
 N-Nitrosodilethylamine (Ethanamine, N-ethyl-N-nitroso-)  
 N-Nitrosodimethylamine (Dimethylnitrosamine)  
 N-Nitroso-N-ethylurea (Carbamide, N-ethyl-N-nitroso-)  
 N-Nitrosomethylethylamine (Ethanamine, N-methyl-N-nitroso-)  
 N-Nitroso-N-methylurea (Carbamide, N-methyl-N-nitroso-)  
 N-Nitroso-N-methylurethane (Carbamic acid, methylnitroso-, ethyl ester)  
 N-Nitrosomethylvinylamine (Ethanamine, N-Methyl-N-nitroso-)  
 N-Nitrosomorpholine (Morpholine, N-nitroso-)  
 N-Nitrosornicotine (Nornicotine, N-nitroso-)  
 N-Nitrosopiperidine (Pyridine, hexahydro-, N-nitroso-)  
 Nitrosopyrrolidine (Pyrrole, tetrahydro-, N-nitroso-)  
 N-Nitrososarcosine (Sarcosine, N-Nitroso-)  
 5-Nitro-o-toluidine (Benzenamine, 2-methyl-5-nitro-)  
 Octamethylpyrophosphoramide (Diphosphoramide, octamethyl-)  
 Osmium tetroxide (Osmium (VIII) oxide)  
 7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid (Endothal)  
 Paraldehyde (1,3,5-Trioxane, 2,4,6-trimethyl-)  
 Parathion (Phosphorothioic acid, O,O-diethyl O-(p-nitrophenyl) ester)  
 Pentachlorobenzene (Benzene, pentachloro-)  
 Pentachloroethane (Ethane, pentachloro-)  
 Pentachloronitrobenzene (PCNB) (Benzene, pentachloronitro-)  
 Pentachlorophenol (Phenol, pentachloro-)  
 Phenacetin (Acetamide, N-(4-ethoxyphenyl)-)  
 Phenol (Benzene, hydroxy-)  
 Phenylenediamine (Benzenediamine)  
 Phenylmercury acetate (Mercury, acetatophenyl-)  
 N-Phenylthiourea (Thiourea, phenyl-)  
 Phosgene (Carbonyl chloride)  
 Phosphine (Hydrogen phosphide)  
 Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester (Phorate)  
 Phosphorothioic acid, O,O-dimethyl O-[p-((dimethylamino)sulfonyl)phenyl] ester (Famphur)  
 Phthalic acid esters, N.O.S.\* (Benzene, 1,2-dicarboxylic acid, esters, N.O.S.\*)  
 Phthalic anhydride (1,2-Benzenedicarboxylic acid anhydride)  
 2-Picoline (Pyridine, 2-methyl-)  
 Polychlorinated biphenyl, N.O.S.\*  
 Potassium cyanide  
 Potassium silver cyanide (Argentate(1-), dicyano-, potassium)  
 Pronamide (3,5-Dichloro-N-(1,1-dimethyl-2-propynyl)benzamide)  
 1,3-Propane sultone (1,2-Oxathiolane, 2,2-dioxide)  
 n-Propylamine (1-Propanamine)  
 Propylthiouracil (Undecamethylenediamine, N,N'-bis(2-chlorobenzyl)-, dihydrochloride)  
 2-Propyn-1-ol (Propargyl alcohol)



- Pyridine  
Reserpine (Yohimban-16-carboxylic acid,  
11,17-dimethoxy-18-[(3,4,5-  
trimethoxybenzoyl)oxy]-, methyl ester)  
Resorcinol (1,3-Benzenediol)  
Saccharin and salts (1,2-Benzoisothiazolin-3-  
one, 1,1-dioxide, and salts)  
Safrole (Benzene, 1,2-methylenedioxy-4-allyl-)  
Selenious acid (Selenium dioxide)  
Selenium and compounds, N.O.S.\*  
Selenium sulfide (Sulfur selenide)  
Selenourea (Carbamidoselenoic acid)  
Silver and compounds, N.O.S.\*  
Silver cyanide  
Sodium cyanide  
Streptozotocin (D-Glucopyranose, 2-deoxy-  
2-(3-methyl-3-nitrosoureido)-)  
Strontium sulfide  
Strychnine and salts (Strychnidin-10-one,  
and salts)  
1,2,4,5-Tetrachlorobenzene (Benzene,  
1,2,4,5-tetrachloro-)  
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)  
(Dibenzo-p-dioxin, 2,3,7,8-tetrachloro-)  
Tetrachloroethane, N.O.S.\* (Ethane, tetra-  
chloro-, N.O.S.\*)  
1,1,2-Tetrachloroethane (Ethane, 1,1,1,2-  
tetrachloro-)  
1,1,2,2-Tetrachloroethane (Ethane, 1,1,2,2-  
tetrachloro-)  
Tetrachloroethane (Ethene, 1,1,2,2-tetrachloro)  
Tetrachloromethane (Carbon tetrachloride)  
2,3,4,6-Tetrachlorophenol (Phenol, 2,3,4,6-  
tetrachloro-)  
Tetraethyldithiopyrophosphate (Dithiopyro-  
phosphoric acid, tetraethyl-ester)  
Tetraethyl lead (Plumbane, tetraethyl-)  
Tetraethylpyrophosphate (Pyrophosphoric  
acid, tetraethyl ester)  
Tetranitromethane (Methane, tetranitro-)  
Thallium and compounds, N.O.S.\*  
Thallous oxide (Thallium (III) oxide)  
Thallium (I) acetate (Acetic acid, thallium  
(I) salt)  
Thallium (I) carbonate (Carbonic acid, dith-  
allium (I) salt)  
Thallium (I) chloride  
Thallium (I) nitrate (Nitric acid, thallium (I)  
salt)  
Thallium selenite  
Thallium (I) sulfate (Sulfuric acid, thallium  
(I) salt)  
Thioacetamide (Ethanethioamide)  
Thiosemicarbazide (Hydrazinecarbothioamide)  
Thiourea (Carbamide thio-)  
Thiuram (Bis(dimethylthiocarbamoyl) di-sulfide)  
Toluene (Benzene, methyl-)  
Toluenediamine (Diaminotoluene)  
o-Toluidine hydrochloride (Benzenamine, 2-  
methyl-, hydrochloride)  
Tolylene diisocyanate (Benzene, 1,3-diiso-  
cyanatomethyl-)  
Toxaphene (Camphene, octachloro-)  
Tribromomethane (Bromoform)  
1,2,4-Trichlorobenzene (Benzene, 1,2,4-trich-  
loro-)  
1,1,1-Trichloroethane (Methyl chloroform)  
1,1,2-Trichloroethane (Ethane, 1,1,2-trich-  
loro-)  
Trichloroethene (Trichloroethylene)  
Trichloromethanethiol (Methanethiol,  
trichloro-)  
Trichloromonofluoromethane (Methane,  
trichlorofluoro-)  
2,4,5-Trichlorophenol (Phenol, 2,4,5-trich-  
loro-)  
2,4,6-Trichlorophenol (Phenol, 2,4,6-trich-  
loro-)  
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)  
(Acetic acid, 2,4,5-trichlorophenoxy-)  
2,4,5-Trichlorophenoxypropionic acid (2,4,5-  
TP) (Silvex) (Propionic acid, 2-(2,4,5-  
trichlorophenoxy)-)  
Trichloropropane, N.O.S.\* (Propane, trich-  
loro-, N.O.S.\*)  
1,2,3-Trichloropropane (Propane, 1,2,3-trich-  
loro-)



O,O,O-Triethyl phosphorothioate (Phosphorothioic acid, O,O,O-triethyl ester)  
sym-Trinitrobenzene (Benzene, 1,3,5-trinitro-)  
Tris(1-aziridinyl) phosphine sulfide (Phosphine sulfide, tris(1-aziridinyl)-)  
Tris(2,3-dibromopropyl) phosphate (1-Propanol, 2,3-dibromo-, phosphate)  
Trypan blue (2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl(1,1'-biphenyl)-4,4'-diyl)bis(azo)]bis(5-amino-4-hydroxy-, tetrasodium salt)  
Uracil mustard (Uracil 5-[bis(2-chloroethyl)amino]-)  
Vanadic acid, ammonium salt (ammonium vanadate)  
Vanadium pentoxide (Vanadium (V) oxide)  
Vinyl chloride (Ethene, chloro-)  
Zinc cyanide  
Zinc phosphide

\*The abbreviation N.O.S. (not otherwise specified) indicates that those members of the general class are not specifically listed by name in this appendix.



APPENDIX D

REGULATION 11/82

PCB WASTE MANAGEMENT





[4M]  
**WASTE MANAGEMENT—PCBs REGULATION**  
(O. Reg. 11/82)

**Amendments.—O. Reg. 575/84; filed September 7/84, gazetted Sept. 29/84.**

**1. In this Regulation,**

- (a) "hold" includes own, possess and have care or control of and "holder" has a similar meaning;
- (b) "PCB" means any monochlorinated or polychlorinated biphenyl or any mixture of them or any mixture that contains one or more of them;
- (c) "PCB equipment" means equipment designed or manufactured to operate with PCB liquid or to which PCB liquid was added or drums and other containers used for the storage of PCB liquid;
- (d) "PCB liquid" means,
  - (i) liquids, other than liquids used or proposed for use for road oiling, containing PCBs at a concentration of more than fifty parts per million by weight,
  - (ii) liquids used or proposed for use for road oiling, containing PCBs at a concentration of more than five parts per million by weight, and
  - (iii) liquids made contrary to section 6 by diluting liquids referred to in subclause (i) or (ii);
- (e) "PCB materials" means materials containing PCBs at a concentration of more than fifty parts per million by weight whether the material is liquid or not;
- (f) "PCB waste" means,
  - (i) PCB equipment,
  - (ii) PCB liquid, or
  - (iii) PCB material,but does not include,
  - (iv) PCB material or PCB equipment after it has been decontaminated pursuant to guidelines issued by the



Ministry of the Environment or instructions issued by the Director,

- (v) PCB equipment that is,
  - (A) an electrical capacitor that has never contained over one kilogram of PCBs,
  - (B) electrical, heat transfer or hydraulic equipment or a vapour diffusion pump that is being put to the use for which it was originally designed or is being stored for such use by a person who uses such equipment for the purpose for which it was originally designed, or
  - (C) machinery or equipment referred to in sub-subclause (vi)(A), or
- (vi) PCB liquid that,
  - (A) is at the site of fixed machinery or equipment, the operation of which is intended to destroy the chemical structure of PCBs by using the PCBs as a source of fuel or chlorine for purposes other than the destruction of PBBs or other wastes and with respect to which a certificate of approval has been issued under section 8 of the Act after the 1st day of January, 1981 specifying the manner in which PCB liquid be processed in the machinery or equipment, or
  - (B) is in PCB equipment referred to in sub-subclause (v)(B). [O. Reg. 575/84, s. 1] [4M-1]

2. PCB waste is designated as a waste. [4M-2]

3.—(1) Every site containing PCB waste and PCB related waste but not containing other wastes is classified as a PCB waste disposal site.

(2) In subsection (1), "PCB related waste" means waste containing low levels of PCBs or waste arising from a spill or clean up of PCB liquid or PCB waste. [O. Reg. 575/84, s. 2.] [4M-3]

4.—(1) Every operator of a waste disposal site shall keep records of all PCB waste held by him after the date this Regulation comes into force.

(2) The records referred to in subsection (1) shall include,

- (a) the methods and times at which the PCB waste is received and delivered to and from the site; and
- (b) where PCB waste is transported to and from the site, the



location from or to which it is transported and the person by whom it is transported,  
with respect to any delivery, receipt or transport of PCB waste after the date this Regulation comes into force, and

- (c) a description of the nature and quantities of the PCB waste;
  - (d) the location of the waste disposal site; and
  - (e) the methods of storage of the PCB waste,
- with respect to all PCB wastes at the waste disposal site.

(3) Every operator of a waste disposal site shall report to the Director the information required to be recorded under subsection (2),

- (a) by telephone immediately, and in writing within three days, after a PCB waste first comes on the site; and
- (b) in writing within thirty days after any other PCB waste is taken to or from the site.

(4) A record of a PCB waste transfer submitted to the Ministry under Regulation 313 of Revised Regulations of Ontario, 1980 satisfies the requirements of clauses (2)(b), (c) and (d) with respect to the PCB waste referred to in that record.

(5) Two years after an operator of a waste disposal site gives written notice to the Director that he has ceased to be a holder of PCB waste, he may dispose of records kept under subsection (1).

(6) Subsection (1) does not apply in respect of PCB waste that has been finally disposed of by burial before the 1st day of January, 1981. [4M·4]

5.—(1) A PCB waste disposal site is exempt from the provisions of sections 27, 39 and 40 of the Act.

(2) The exemption set out in subsection (1) is subject to the condition that,

- (a) the operator of the site reports to the Director the information required to be recorded under subsection 4(2);
- (b) the operator of the site does not remove or permit to be removed,
  - (i) PCB waste containing over fifty litres of PCB liquid except in accordance with the written instructions of the Director,
  - (ii) any other PCB waste except,
    - (A) in accordance with written instructions of the Director, or
    - (B) to a waste management system or waste disposal site for which a certificate of approval has been



issued after the 1st day of January, 1981 containing terms specifying the manner in which PCB waste may be stored, handled, treated, collected, transported, processed or disposed of;

- (c) where there is any PCB liquid in electrical equipment or other container on the site, the operator of the site not remove the liquid from the container except,

(i) to transfer liquid from a leaking container upon notifying the Director of the transfer, or

(ii) pursuant to instructions of the Director; and

- (d) no certificate of approval or provisional certificate of approval has been issued with respect to the site after the 1st day of January, 1981, specifying the manner in which PCB waste may be stored, handled, treated, collected, transported, processed or disposed of.

(3) In respect of a PCB waste disposal site that is offered for sale or lease or the possession of which is otherwise offered, the exemption set out in subsection (1) is subject to the conditions that,

- (a) the person offering to sell, lease or otherwise give possession notifies, in writing,

(i) the prospective purchaser, tenant or person taking possession, of the existence of the site and the requirements, in law, concerning the site, and

(ii) the Director, of the sale, lease or change in possession; and

- (b) where a sale, lease or change of possession occurs, the purchaser, tenant or person taking possession notifies, in writing, the Director, within ten days after the sale, lease or change of possession, of,

(i) the location of the site, and

(ii) the nature and quantity of PCB waste.

[O. Reg. 575/84, s. 3.] [4M-5]

6. No person shall dispose of, decontaminate or otherwise manage PCB waste or dilute PCB waste that is in the form of a liquid except,

- (a) in or to a waste management system operating under a certificate of approval issued after the 1st day of January, 1981 containing terms specifying the manner in which PCB waste may be stored, handled, treated, collected, transported, processed, diluted or disposed of; or





(b) in accordance with written instructions of the Director.

[O. Reg. 575/84, s. 4] [4M·6]

7. Every person storing PCB waste shall ensure that the PCB waste is in a safe and secure location so as to prevent PCB waste coming into contact with any person and so that any liquid containing PCBs that may escape can be readily recovered and will not discharge, directly or indirectly, into a watercourse or groundwater. [4M·7]

8. No person shall have at a waste disposal site PCB wastes received by the person after this Regulation comes into force unless,

(a) the PCB waste was delivered to the waste disposal site under written instructions of the Director; or

(b) the waste disposal site is operated under a certificate of approval containing a condition referring to this section and specifying the circumstances under which PCB waste may be accepted at the waste disposal site. [4M·8]



APPENDIX E

DELISTING APPLICATION FORM



**DELISTING APPLICATION FORM  
FOR HAZARDOUS WASTES**

(Regulation 309, R.R.O. 1980)  
Ontario Ministry of the Environment

**INSTRUCTIONS:**

1. Please do not complete the attached application form until you have reviewed the Delisting Guidance Manual for Hazardous Wastes
2. Each numbered section in the application forms must be completed. If information requested is not clear, refer to the Delisting Guidance Manual (DGM). Sections of the forms which do not apply to your specific application must be marked not applicable (NA).
3. Additional space is required to complete most of the sections; please attach additional sheets/documents at the end of the application forms as required; identify and reference these documents as Appendices (A to Z) in the application forms.
4. Please submit the completed delisting application to :

Hazardous Waste Listing/Delisting Unit  
Waste Management Branch, Area "M"  
Ontario Ministry of the Environment  
135 St.Clair Avenue West  
Toronto, Ontario.  
M4V 1P5



PART A: GENERATOR IDENTIFICATION

1. Generator Registration Number   
2. Initial Delisting Application   
3. Revision/Update

Name of Generator ( corporate name, principal)

4. Name   
5. Address  Prov.   
6. Municipality  Postal Code

Waste Generation Site:

7. Site Name   
8. Address  Prov.   
9. Municipality  Postal Code

10. Names of contact (for clarification or for additional information) (Please print)

Name	Position/Company	Telephone
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

11. Description of waste to be considered for delisting (Refer to your MOE registration)

12. Waste Class (as registered by MOE)

Certification of Accuracy and Responsibility

I certify that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiries, I confirm that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information.

13. Name of Company Official  Position   
14. Signature  Date





## PART B: MANUFACTURING PROCESSES

1. Description of the manufacturing processes  
(including: production lines, operation cycle, surface preparation  
and diagrams). (Include additional information in Appendices)


### Assessment of Hazardousness

(Fill in box by check or NA)

2. Select one : Approach A ☐  
Approach B ☐  
Special Procedures ☐

#### APPROACH A: (Include additional information in Appendices)

3. Material inventory ☐  
4. Material present in waste stream ☐  
5. Material not in waste stream ☐  
6. Other considerations ☐

#### Test results of representative samples

7. Number of samples ☐  
8. Specific hazardous constituents ☐  
9. Waste characteristics ☐  
10. LEP test ☐  
11. Total concentration of constituents (Sch.4) ☐  
12. TOC ☐  
13. Total oil/grease ☐

#### APPROACH B: (Include additional information in Appendices)

14. Review of constituents of Appendix C ☐

#### Test results of representative samples

15. Number of samples ☐  
16. Specific hazardous constituents ☐  
17. Other Appendix C constituents ☐  
18. Hazardous characteristics ☐  
19. LEP test ☐  
20. TOC ☐  
21. Total oil/grease ☐



### SPECIAL PROCEDURES: Petroleum Refining wastes

(Include additional information in Appendices)

Test results of representative samples

(Fill in box by ✓ or NA)

22. Number of samples \_\_\_\_\_
23. Waste characteristics \_\_\_\_\_
24. LEP test \_\_\_\_\_
25. TOC \_\_\_\_\_
26. Total oil/grease \_\_\_\_\_
27. LEP/EP test \_\_\_\_\_
28. Constituent of special industry \_\_\_\_\_
29. Chromatographic scanning of organics \_\_\_\_\_
30. Additional significant toxic constituents \_\_\_\_\_

### SPECIAL PROCEDURES: wastes from Multiple Waste Treatment Facilities

(Include additional information in Appendices)

(Fill in box by check or NA)

31. Generator prescreening and waste identification \_\_\_\_\_
- Test results of representative samples \_\_\_\_\_
32. Number of samples \_\_\_\_\_
33. Waste characteristics \_\_\_\_\_
34. LEP test \_\_\_\_\_
35. TOC \_\_\_\_\_
36. Total oil and grease \_\_\_\_\_
37. Cyanide (total, free, leachable) \_\_\_\_\_
38. Long term stability (if applicable) \_\_\_\_\_
39. Other Appendix C constituents \_\_\_\_\_
40. Statistics on waste types received \_\_\_\_\_
41. Quality Control/Monitoring program \_\_\_\_\_



## PART C: WASTE STREAM

1. Waste stream description (Include additional information in Appendices)


2. Waste Class 

--

 PIN (TDGA) 

--

3. Physical State 

--

 % Solid 

--

4. Amount generated                      Average (units)                      Maximum (units)

Monthly 

--

--

--

--

Yearly 

--

--

--

--

### Waste Sampling Program (Include additional information in Appendices)

(Fill in box by ✓ or NA)

5. Rationale of representative sampling 

--
6. Time variability 

--
7. Space variability 

--
8. Description of sampling equipment 

--
9. Description of sampling techniques 

--
10. Sample handling/documentation 

--

### Waste analytical methods

11. Four hazardous waste characteristics 

--
12. Constituents 

--
13. QA/QC 

--

## PART D: WASTE MANAGEMENT PRACTICES

### Description of waste management practices

(include additional information in Appendices)

1. Present waste management 

--
2. Planned waste management for delisted waste 

--





